Vol. XXIII JUNE 1929 No. 6

The EXCAVATING ENGINEER

IN THIS ISSUE:

Notching Granite Cliffs of Hudson for Two Additional New York Central Tracks.

Trucks Versus Cars Argument Waged on Chumstick Cut-off.

Changing Course of River Rhine.

Front Cover Illustration: New England Rock Excavating Company, digging for foundation of the new Brighton High School, completed the job one month ahead of contract time.

A loading Shovel

that has all the reliability of the largest BUCYRUS-ERIE Coal Stripper

Stripping operators who are taking off the overburden with the 16-yard to 12-yard BUCYRUS-ERIE "750-B," "the most powerful and reliable stripper built" —

are getting best results by following up with the new 2½-yard BUCYRUS-ERIE "75-B" for loading the coal.

This powerful, reliable team gives the lowest operating costs that are possible today with stripping equipment.

The "750-B" rips through the tough overburden at the same rate of speed as strippers having only 65% the dipper capacity. And this stripper's speed and capacity are backed up by its powerful loading team-mate, the "75-B". A 2½-yard shovel that is built along exactly the same lines as the BUCYRUS-ERIE 3-yard and 4-yard shovels.

Greater speed, backed up by *inbuilt Reliability*

These machines are built on the BUCYRUS-ERIE principle of "simpler and stronger." Built with extra strength in all parts where strength counts most. The reports of owners show low upkeep costs as satisfactory as the new marks set in output.

Will be glad to help you estimate the results you can get on your own operation, with this modern *big production* stripping team.

BUCYRUS-ERIE COMPANY

Plants: South Milwaukee, Wis., Erie, Pa., Evansville, Ind.

General Offices: South Milwaukee, Wis.

Representatives throughout the U. S. A. and Canada

Offices and Distributors in all principal countries

BRANCH OFFICES

Boston · **New York** · **Philadelphia** · **Atlanta** · **Birmingham** · **Pittsburgh**

BUCYRUS ERIE

BRANCH OFFICES

St. Louis · **Dallas** · **San Francisco** · **Buffalo** · **Detroit** · **Chicago**

Adv. 738

In writing to Bucyrus-Erie Company please use post card bound in the center of this number.

GREDAG
REG. U. S. PAT. OFF.
LUBRICANTS

PREVENT HOT BEARINGS
Prevention Is Better Than Cure

Graphite has long been used by engineers as an emergency cure for hot bearings. Gredag, a grease lubricant, carries its own preventive against trouble by the incorporation of Acheson-Graphite with a high quality grease body. There are grades for every purpose. Write for catalog, "Industrial Lubrication".

Acheson Lubricating Graphite is 99.9% pure. It is also sold separately, in powder form.

ACHESON GRAPHITE CORPORATION
Unit of Union Carbide UCC *and Carbon Corporation*
NIAGARA FALLS, NEW YORK

You Can't Pour Concrete in the Rain

FORCED interruptions of work—expensive equipment idle—interest, depreciation and overhead eating into profit. Unseasonable weather is no respecter of contracts. That is one reason why so many contractors put Carbic Flood Lights on every important job. They know that the best way to make up for lost time is to work full force while the season is on, to keep going night and day.

With Carbic Flood Lights your night shift can *hustle* safely. The great power in the clear white rays of Carbic Light is perfectly diffused. There is no glare—no dark shadows. It penetrates fog, smoke or dust. It is a good light to work by.

The Carbic Flood Light is low in first cost and inexpensive to operate. It is simple, rugged and portable.

Get in the hours while the weather is right—use

CARBIC LIGHT
OXWELD ACETYLENE COMPANY
Unit of Union Carbide and Carbon Corporation
NEW YORK CITY: Carbide and Carbon Bldg. CHICAGO: Carbide and Carbon Bldg.
SAN FRANCISCO: Adam Grant Building

Carbic is distributed by the Union Carbide Sales Company through its national chain of warehouses and is sold by jobbers everywhere.

CARBIC

The
Excavating Engineer

PUBLISHED MONTHLY

25 Cents Per Copy — One Dollar Per Year

Vol. 23 SO. MILWAUKEE, JUNE 1929 No. 6

CONTENTS

Articles

Notching Granite Cliffs of Hudson for Two Additional New York Central Tracks 241
Trucks Versus Cars Argument Waged on Chumstick Cut-off 245
Changing Course of River Rhine 247
Los Angeles Starts San Gabriel Dam 251
Fred Wills Digs Indiana Drainage Ditch with Diesel Dragline 254

Field Notes

Put Blasting Caps in a Safe Place 251
Make Water Show Up Plainly 251

Editorials

The Business Situation 252
Our Front Cover 253

Equipment You Ought to Know About

Novo Introduces Portable Light Plant Excellently Suited to Contractor's Use 255
New Cincinnati 1200 Series Gasoline Locomotives 255
New Line of Buhl Compressors 256
New Overload Release Sprocket for Barber-Greene Loader 256
W. A. Riddell Company Adds New Model to Line of Warco Graders 256

Shots from the Firing Line

Road Builders to Meet at Atlantic City Next Year 257
New England Notes 257
Eastern Notes 257
Eastern Pennsylvania Notes 257
Pittsburgh and Vicinity 258
Detroit and Vicinity 260
Wisconsin Notes 262
Minnesota Notes 264
Southern Notes 264
St. Louis Notes 266
Oklahoma Notes 268
Los Angeles and Vicinity 268
Pacific Coast Notes 272

Trade Notes 274

Book Reviews 276

ADDRESS ALL COMMUNICATIONS TO

The Excavating Engineer Publishing Co.

F. O. Wyse, Manager-Editor — Arnold Andrews, Associate Editor

South Milwaukee, Wisconsin, U. S. A.

Copyright 1929 by The Excavating Engineer Publishing Co.

CLAM SHELL BUCKETS

ARE DESIGNED TO

Counteract the Lifting Tendencies While Closing, Thereby Obtaining a Big Load at Every Grab

Once upon a time all Clamshell buckets had a tendency to lift out of the materials while closing. By changing the general design of the closing mechanism of Erie Buckets we now have a Bucket that forces itself into the materials instead. If you want to speed up production and realize a profit on your job, look into the above subject carefully before buying.

Erie Scraper

Buy a Good Crane and Then Insist on an Erie Bucket

There is a size for every crane and a type for every job. No matter how hard the digging will be Erie Buckets will obtain a big load at every grab, and be giving good service long after other buckets have worn out. Remember the crane you buy is only as good as the bucket you put on it.

Which Would You Rather Have —

A slow bucket which obtains slightly more material per trip or a fast bucket that makes an extra trip in every four, and at the end of the day has handled considerable more yardage? Are you getting paid for capacity per trip or total yardage handled? Consider this carefully.

Buckets May All Look Alike But

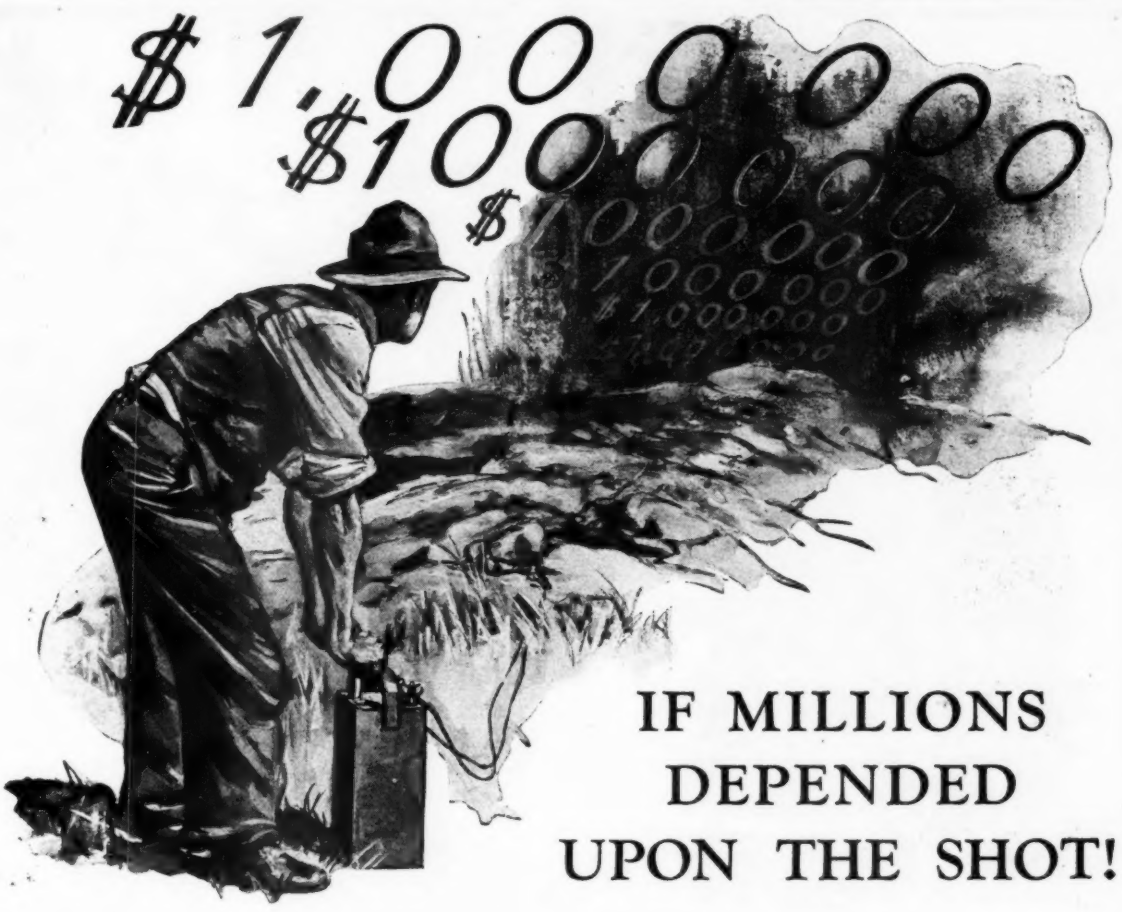
they are not all alike, and before you buy send for the Erie Catalog and prices.

Erie Peerless with Roller Bearings

ERIE STEEL CONSTRUCTION CO.

ERIE · BOX 8 · SOUTH ERIE STATION · PENNA.

In writing to Erie Steel Construction Co. please use post card bound in the center of this number.



IF MILLIONS DEPENDED UPON THE SHOT!

SUPPOSE you were planning a blast upon the success of which millions of dollars depended. Imagine the care with which you would select and test the materials and prepare the shot. You would do everything humanly possible to guard against a failure.

Did you ever stop to think that this is exactly our position in relation to the blasting caps we sell? The successful performance of many millions of dollars' worth of explosives depends upon the quality of the blasting caps and electric blasting caps that we supply to shoot them.

The care that goes into the manufacture of Hercules Detonators is out of proportion to their sales value. They mean much more to us than the profit from their sale. To us they represent additional insurance for satisfaction from the use of Hercules Explosives. Hercules Detonators furnish the same insurance to all who use them.

For information on other explosives and blasting supplies, see pages 170 to 172 of the 1928 Keystone Metal-Quarry Catalog.

HERCULES POWDER COMPANY
(INCORPORATED)

949 King Street, Wilmington, Delaware

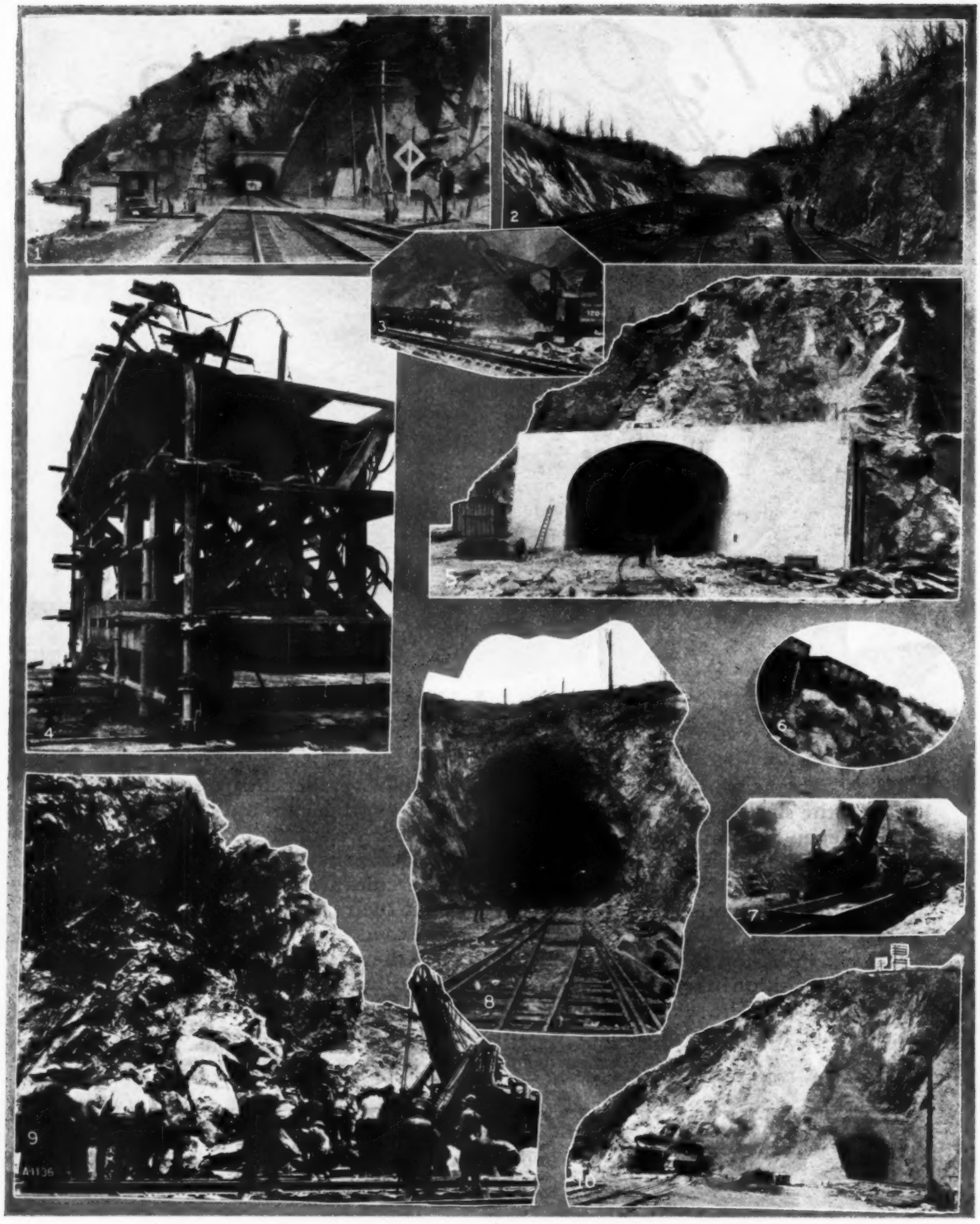
Please send me additional information about Hercules Blasting Supplies.

Name

Address

2653

In writing to Hercules Powder Co., Inc., please use post card bound in the center of this number.



The New York Central Garrison Job of the Walsh Construction Company in Pictures.

1. Looking North at the Southern Portal of the old Storm King Tunnel. The new tunnel was put through at the left. 2. Here we see a train of Westerns being loaded by a Bucyrus-Erie 41-B at the mouth of Garrison Tunnel. 3. Four yards of rock at a bite were tossed into the waiting cars by this Bucyrus-Erie heavy-duty four-yard steam shovel. 4. Tunnel drill car used for driving hole. 5. Drill car in position in the South approach of Storm King Tunnel while the 41-B waits for the "shot" so it can go in and clean up after the blast. 6. Unloading a train of Westerns on the rock dump. 7. Even the Bucyrus-Erie heavy-duty quarry and mining shovels found some hard going in cutting through the huge rock cliffs of Beverly Cut. 8. Close-up of the North end of Garrison Tunnel. 9. Keeping the main line clear for passage of 175 trains daily required a large force of laborers to remove rock fragments after the blasts; it also took powder experts with thorough experience to properly handle drilling and loading. 10. Bucyrus-Erie 41-B steam shovel cutting in at the South approach to Storm King Tunnel.

The EXCAVATING ENGINEER

Vol. XXIII JUNE 1929 No. 6

Notching granite cliffs of Hudson for two additional New York Central tracks

Walsh Construction Company carves rock precipices to make grade beside main lines carrying 175 trains a day

IT is doubtful if, anywhere, there has been a more difficult job of excavating than the recently completed widening on approximately ten miles of New York Central main line between Manitou and Beacon, New York. It was the Walsh Construction Company, of Davenport, Iowa, who handled the 840,000 cubic yards of rock excavation required for this project, which permits laying four tracks on this section of the New York-Albany line instead of the present double-track line.

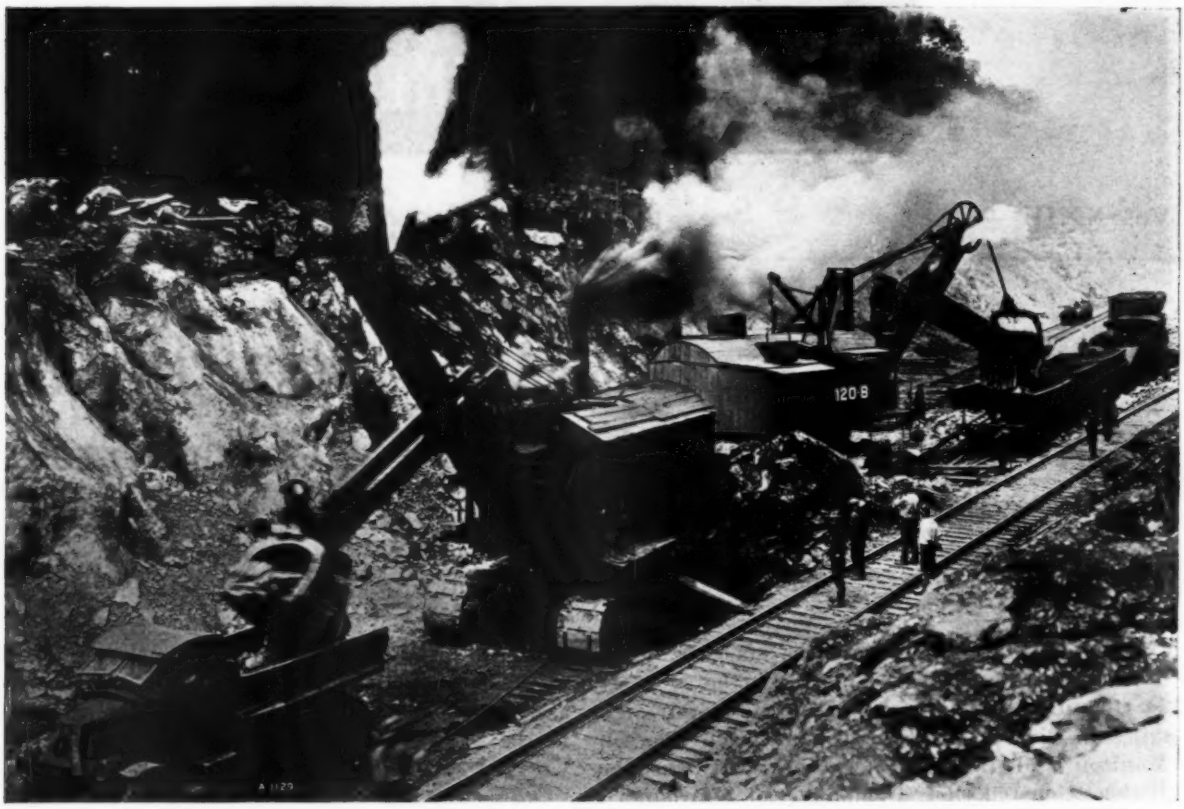
The chief difficulty in handling this work lay at Beverly Cut near Garrison, where the blasting, digging and loading of an 80 to 110-foot rock cliff immediately alongside of the main line must be done without interruption to 175 trains passing daily.

Contract Involved 840,000 Cubic Yards of Extremely Difficult Rock Excavation

In the first place, practically 800,000 cubic yards of the excavation was from bold rock bluffs and ledges which towered as high as 110 feet, almost directly above the two existing main line tracks that carry all of the New York Central's high-speed passenger and freight traffic into New York City proper; and in the second place, approximately 40,000 cubic yards of rock had to be removed in three tunnels, so close to main line operations that every phase of the work has had to be carried out under severe difficulties. This latter work included the driving of a new 540-foot double-track tunnel through solid rock, and the enlarging of two tunnels in rock for a total distance of 920 feet.

More holes and lighter charges was one of the answers to the problem of keeping the main lines under cliff face clear.

Throughout all of this work, there have been about 175 train movements past the operations each day. This heavy traffic not only required most elaborate precautionary measures, but made it necessary to adopt many unusual practices in order that the work could progress steadily and safely, without interference to the movement of trains. The success with which these special methods have been used is, in many respects, as significant as the magnitude of the work itself

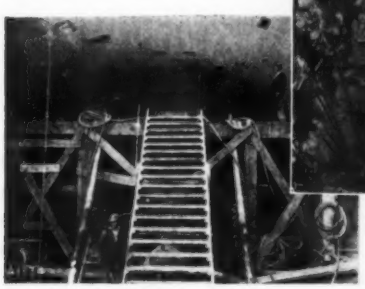


Where it was possible double tracks were kept behind the 120-B, and rear car was loaded first on one track and then on the other, with two trains at the shovel. The 50-B in the foreground is loading into Mack trucks, thereby saving expense of keeping up track connections.

and the operating advantages which it will bring about.

Not a Major Accident or Serious Train Delay Occasioned in Putting Through Project

Excluding the excavation in the three tunnels, about 800,000 cubic yards of rock has been broken down and removed in connection with the four-tracking work, and almost without exception all of this excavation has been made under unusually difficult conditions. The main problem, and one which seemed almost insurmountable at first, was that of blasting away the high rock walls which closely confined the roadbed, without interfering with the schedules or jeopardizing the safety of about 175 trains passing directly alongside the operations each day. Extreme care was the only answer to this problem, and that such was taken in a most effective manner is evidenced by the fact that not a major accident or serious train delay was occasioned in all of the right-of-way widening work.



Above: Tunnel drill car with Ingersoll-Rand drivers and stoppers working in Garrison Tunnel.

Left: Drillers at work on the upper platform of drill carriage, channeling the arch curf.

In carrying out this project, unusual precaution was taken to prevent falling rock from obstructing either of the main tracks. To do this, great care was exercised in determining the overburden, height, slope, stratification and type of rock to be removed, and, furthermore, in placing the blasting holes and determining the amount of explosives to be loaded.

In no cases have the main tracks been allowed to become obstructed by the equipment of the forces carrying out the work. All blasting operations have been carefully scheduled, and all trains have been operated by the work under special orders.

All work was handled with tripod and hand air drills supplied by Ingersoll-Rand, compressed air

being furnished by eight 110 h.p. Ingersoll-Rand oil engine compressors delivering 4000 feet of air per minute. 40% gelatine was used in blasting. In connection with the drilling operation Walsh Construction Company used oil furnaces, pedestal grinders and sharpeners all made by Ingersoll-Rand for keeping their drills in good condition.

The Beverly Cut is just opposite West Point and about 5000 feet long, the very hard granite cliff standing 80 to 110 feet straight up beside the old double track.

Bucyrus-Erie Heavy Duty Quarry and Mining Shovels Selected for Rock Work

For this cut a Bucyrus-Erie 120-B, four-yard, and a Bucyrus-Erie 100-B, three-yard, heavy-duty steam shovels were purchased and set to work, one on either end of the cut. In addition to these large machines there was also used on other portions of the contract one Bucyrus-Erie 50-B shovel, one Bucyrus-Erie 41-B shovel, one Bucyrus-Erie 70-C railroad shovel and one Marion 37 steam shovel, also Browning cranes. The bulk of the rock digging was handled by the large machines (120-B and 100-B).

The Walsh Construction Company equipment used on the job included 120 12-yard Western dump cars and 15 locomotives.

Insert: Jackhammer operation at Beverly Cut.

Three Ingersoll-Rand oil engine compressors furnished air for drilling new Storm King Tunnel. This view shows the interior of the compressor house located at the south tunnel.

The Contract Included Considerable Tunnel Enlargement

The Garrison tunnel, which was part of the contract, was another complication requiring very delicate handling. The enlargement of the tunnel had to be made without any interference to trains.

Construction Views of New Approach of Storm King Tunnel.

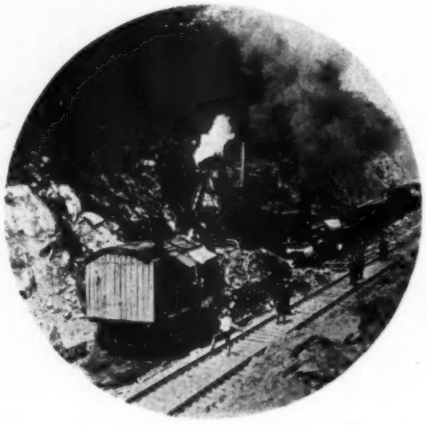
1. Close-up of the approach to the North Portal, showing the close drilling used to excavate the rock with the least possible shattering so as not to jar and injure the nearby siphon shaft of the Catskill Water Supply System. 2. Drilling thirty-foot holes with Ingersoll-Rand deep hole drills for the approach to the new tunnel. 3. Another view showing the line of rock excavation on the West side to the North Portal approach. Not more than fifty feet away from the center of the shaft house of the Catskill Water Supply System! 4. Showing the old North Portal, with the approach excavated for the second paralleling tunnel at the right. 5. This view of the East wall gives a very accurate idea of the size of rock work. 6. Here we have the finished tunnel ready for traffic.

Left: The Blacksmith Shop at the north portal, Storm King Tunnel, where the Walsh Construction Company used Ingersoll-Rand furnace and sharpener to keep the drill steel in proper shape for fast drilling.

Center: After firing one ring round at the Garrison Tunnel. Right: In the Blacksmith Shop at the south end, Breakneck Tunnel, we find an Ingersoll-Rand oil furnace, pedestal grinder and planer drill.

At the old Break Neck Tunnel, enlarged in a similar way, the Hudson River Syphon of the New York City Catskill water supply system lay on one side of the new tunnel while the old Break Neck Tunnel lay on the opposite side. The new tunnel had to be driven through without injury to either the old tunnel or the Hudson River Syphon.

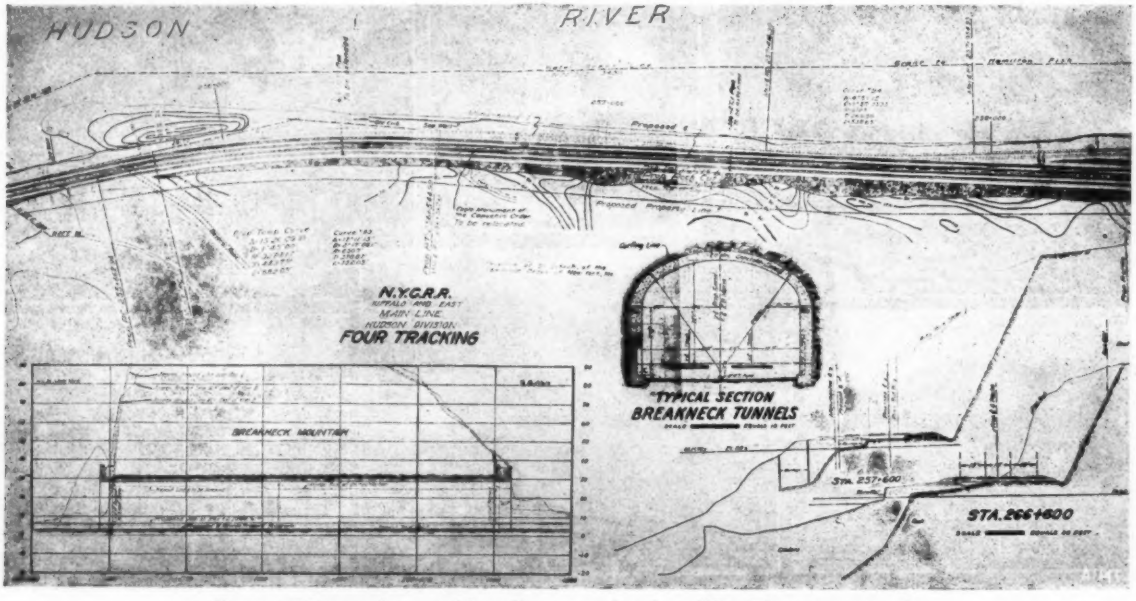
The general office of the Walsh Construction Company is at Davenport, Iowa, and this organization is, without doubt, one of the best known in the United States.



Bucyrus-Eries — 50-B and 120-B — cleaning up one of the last rock cuts.

The successful completion of this New York Central improvement under the extremely difficult conditions involved is certainly a tribute to the courage, ability and efficiency of the Walsh Construction Company organization.

Where is the task too difficult for the excavating engineer of today?



Group of interesting working diagrams showing difficulties encountered.

Note: We wish to acknowledge the courtesy of the Western Wheeled Scraper Company, Ingersoll-Rand Company, T. P. Lynch, Resident Engineer for the New York Central Railway at Garrison, New York, Mr. Moore of the New York office of the New York Central Railway, and G. Savory of the Bucyrus-Erie Company, Ltd., London, who have furnished photographs and maps from which illustrations for this article were prepared. — Ed.

Trucks versus cars argument waged on Chumstick Cut-off

Guthrie Gas+Airs make two eight-hour records of over 1000 yards in single day

By R. T. WAGGONER,

Camp Superintendent, A. Guthrie & Company, Inc.

FEW general contractors are as well known as A. Guthrie & Company, Incorporated, of St. Paul, who are handling jobs all over North and South America. The recently completed Cascade Tunnel for the Great Northern is one of their jobs, and well enough known to need no further description here.

In addition to this tunnel the Guthrie organization also recently completed the Chumstick Cut-off for the Great Northern, a twenty-mile line change between the towns of Peshastin and Winton, Washington, located near the east end of the new Cascade tunnel.

This new line follows up the Wenatchee River in the same general direction as the old line for the first four miles, it then turns northward up the Chumstick Valley with a series of long tangents and a few easy curves for the next seven miles. Then it swings westward, piercing the dividing range with a half-mile tunnel, and emerges again into the Wenatchee Valley where it follows down the river while the grade itself is continually climbing. Another northward turn and a three-quarter-mile tunnel brings it back to the old line near Winton.

R. T. Waggoner, at left, congratulating Clint Clemens, shovel operator, on the high record—a good one for the rest of the boys to shoot at.

The new line has forty-eight fewer curves than the old line, and eliminates 1286 degrees of curvature. The sharpest curve is three degrees, while there were several nine-degree curves on the old line. The maximum grade on the new line is 1.6%, while the maximum on the old line was 2.2%.

The new grade up the Chumstick Valley.

Light Cuts Prove More Economical to Handle

The grading work was heavy. The large cuts were mostly solid rock of a very hard formation. Owing to this fact, it was found more economical to make the cuts as light as possible, and construct the fills largely from borrowed free digging material.

E. S. Jackson was the Resident Engineer for the Great Northern Railway Company and C. H. Taylor was Superintendent in Charge of Construction for A. Guthrie & Company, Inc.

Two Gas + Air Shovels Handle Excavating at Camp 7

Camp No. 7 was located seven miles from Peshastin or the beginning point, and was under the supervision of the writer, R. T. Waggoner. The grading work on this section was adapted to lighter equipment than was being used on some of the other sections. Therefore, two Bucyrus-Erie Gas + Air shovels with one and one-quarter cubic-yard dippers were assigned to this camp. One

worked with cars and track while trucks were used under the other. The cars used were Western four-cubic-yard, thirty-six-inch gauge, and the trucks were five and one-half ton Whites with four-cubic-yard dump bodies.

The Old Argument of Trucks vs. Cars

The rivalry between the foremen and shovel operators was keen at all times, and they have been continually trying to settle the old argument of cars and track vs. trucks. The units were well matched and conditions were similar. It seemed as though the argument could be settled fairly here, if any place.

On the particular day when the snapshots used in illustrating this article were taken the GA-2, under the guiding hand of Clint Clemens, was loading trucks in a borrow pit, and a mile away the other Gas + Air, with Dan Treat at the levers, was loading cars. Clemens saw that conditions were just right for a record and started out to set one. By noon Mr. Treat had gotten wind of what was going on. The news was passed to the foremen, and soon the whole crew were into the spirit of the thing. A big cloud of dust could be seen coming out of the little valley that afternoon.

This is the way it was done. A truck spotted on each side of the shovel. Four trucks hauled to two separate dumps; three on an 1100-foot haul and one on a 300-foot haul. Attention is called to the marks in the bank made by the shovel teeth, showing that the digging wasn't any too good.

Score — 328 Trucks Against 321 Cars

The result was 328 truck loads for Clemens and 321 cars for Mr. Treat in eight hours. The truck record stood for the balance of the job, but the car record was later beaten but was not brought up to the truck figure. The truck factor for the entire operation at Camp 7 figures out slightly in excess of 3.25 cubic yards bank measure. Therefore, I think I have safely figured this day's run as three and one-quarter cubic yards for the eight-hour record run made by Clemens and the Gas + Air.

Four trucks were used on two separate dumps. One truck was on a 300-foot haul and three on an 1100-foot haul. In both cases they were end-dumping on a 22-foot embankment averaging

Mile 8 of the Chumstick Cut-off on the Great Northern Railroad.

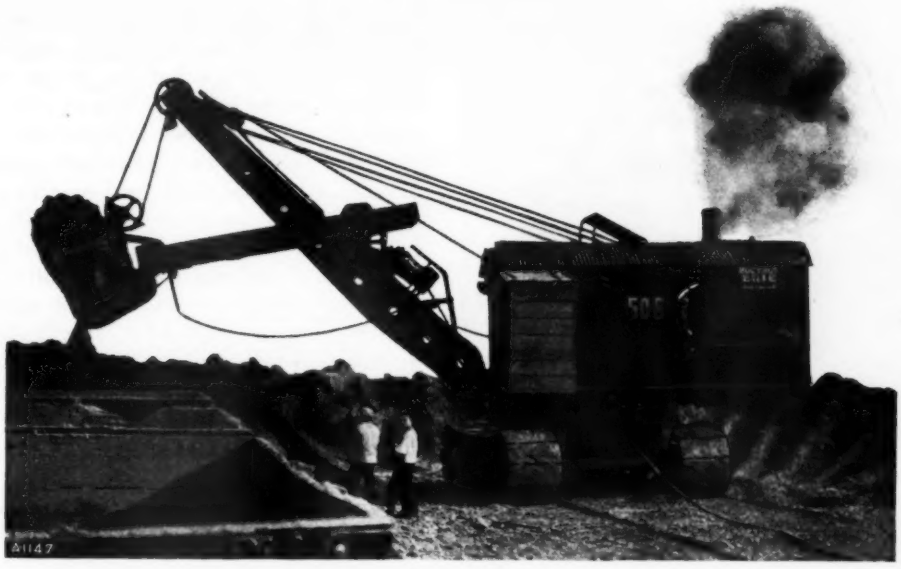
twelve feet in height. In order to get the best load speeds from the trucks it was necessary to cut the reverse gear work to a minimum. This was done by constructing a turn out near the end of the dump, consisting of two bents and a mud sill, and decked with 4 x 12's, 16 feet long. By running the front wheels out on this platform the drivers were able to turn their trucks with the load in one operation.

Double Spot Saves Time for Truck Loading

No time was lost at the shovel, since it was arranged so that one truck would spot on each side of it. In most cases three swings with the one and one-quarter yard dipper filled the truck though four were required occasionally. The little shovel was working perfectly and the operator likewise, and it was very few times the shovel got a chance to pop-off.

It was simple to figure the cost of this day's operation with the trucks, but not so easy with the car and track, owing to the previous expense of trestle and track work. Therefore only the cost on the truck operation is given below. The trucks

(Continued on Page 253.)



This Bucyrus-Erie 50-B recently made a four months' average of 194 cubic yards per hour including all idle time.

Changing course of River Rhine

Well-known French contractors start huge hydro-electric project involving nearly ten million yards of excavation.

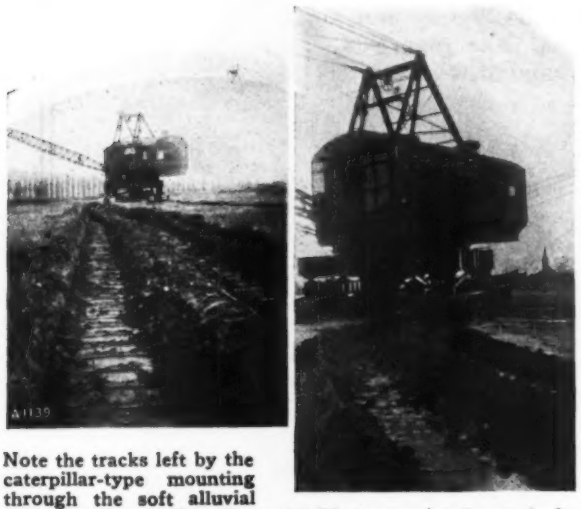
FOR many years past the possibility of utilizing the energy of the Rhine for generating electricity has been under consideration. Between the point where this great river enters France, just below Bale, and Strasbourg, the capital of Alsace, there is a drop in level of more than 330 feet, and this head with the enormous volume of water is sufficient to develop 900,000 horsepower. Had it not been for the World War, there is no doubt that this hydro-electric project would have been undertaken at an earlier date. Eventually, however, the concession for the construction and development of this electrification was granted by the French Government on July 28, 1927, to an important electrical concern: the Societe des Forces Motrices du Haut Rhin, and to Monsieur Rene Koechlin who had made the most complete studies of the whole question, over a period of many years.

Societe Energie Electrique du Rhin Handle Construction

A subsidiary company was formed for the carrying out of the work, called the Societe Energie Electrique du Rhin. It is interesting to note that such was the confidence of the public in the success of this big undertaking, that the shares of the new company, formed in December, 1927, were instantly over-subscribed many times, the required capital being covered 24 times within a few days from the date of issue.

Work has now been commenced on the first of these hydro-electric power stations, which is being built just a few miles below Bale. The head at this station is about 30 feet, and there will be six vertical turbo-alternators developing 120,000 horsepower. This first station is scheduled for completion by October, 1932. Eventually, there will be five or six more similar stations between that point and Strasbourg.

As shown on the accompanying map, the work consists of the excavation of a main canal which will divert the Rhine from its present course and will lead it to the generating station, and thence back into the river at a point some 4 miles further down by a discharge canal. It will also be noted that just before reaching the power station this main canal branches into two parts, one of which is the power canal proper, and the other is a navigation canal, which, through a system of locks, joins the discharge canal and thence goes back to the Rhine. This navigation canal will be of the greatest value in permitting the very heavy barge



Note the tracks left by the caterpillar-type mounting through the soft alluvial soil. Ready mobility of the 200-B's has assisted greatly in piling up the remarkable records they have made.

traffic of the Rhine to go up as far as Bale, which at present is impossible on account of the rapids.

Huge Dykes Along Either Side to Maintain Water Level in Main Canal at 22 Feet Above Present Ground Surface

It will also be noted from the plan that a barrage is being built across the Rhine, just below the main canal inlet, which will back up the water and divert it along the canal. This dam will be of such size as to cause the water to flow along the main canal at a level approximately 22 feet above the present surface of the ground. On this account, huge dykes must be built on either side. These dykes will be lined with concrete on their inner slope, and the bottom of the canal will be made watertight with a lining of clay. Any water, which, in spite of these precautions, may eventually filter through the dykes, will drain back into the Rhine on that side, and on the opposite side will be taken care of by the small drainage canal shown on the plan, which parallels the main canal. This main canal has a bottom width of 80 metres (264 feet), inside slopes 3:1, and maximum depth of excavation about 25 feet. It will carry a volume of water to the power station of approximately 850 cubic metres (30,000 cubic feet) per second, and the average speed of flow will be 70 cubic metres (2¼ feet) per second.

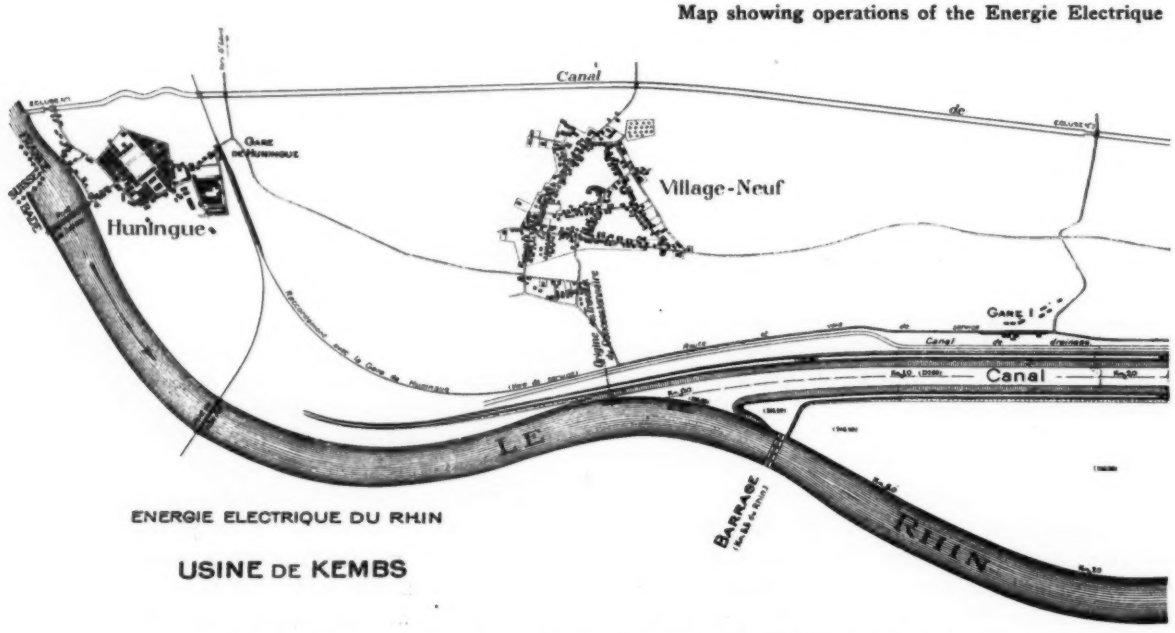
Total Excavation for First Station Nearly Ten Million Yards

The total amount of excavation in connection with the construction of this first hydro-electric station on the Rhine is 7,600,000 cubic metres (9,880,000 cubic yards). The material is all alluvial gravel and good digging, but there are occasional beds of cemented gravel.

For the excavation of the power station foundations, it will be necessary to dig to a depth of nearly 80 feet.

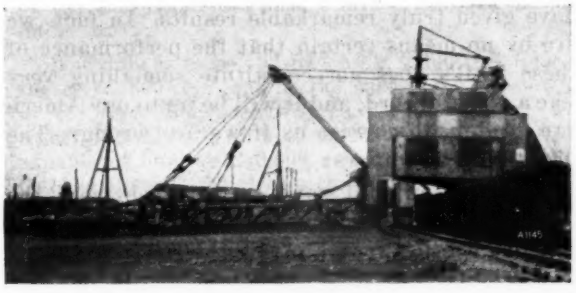
The excavation works are being handled by a group of four important French contractors, and Monsieur Chas. Moreau is supervising the entire works.

Map showing operations of the Energie Electrique



Translation of French captions on map: Canal d' Amenée, Power Canal; Ecluses, Locks; Canal de Fuite,

Monsieur Moreau is well known in Europe through his past association with such important works as the building of the Loetschberg Tunnel,



Large electric "dry land dredge" used on the project and carrying one-cubic-yard bucket.

Basse-Isare Fall, Lens Mines, Ivry Power Station and other installations.

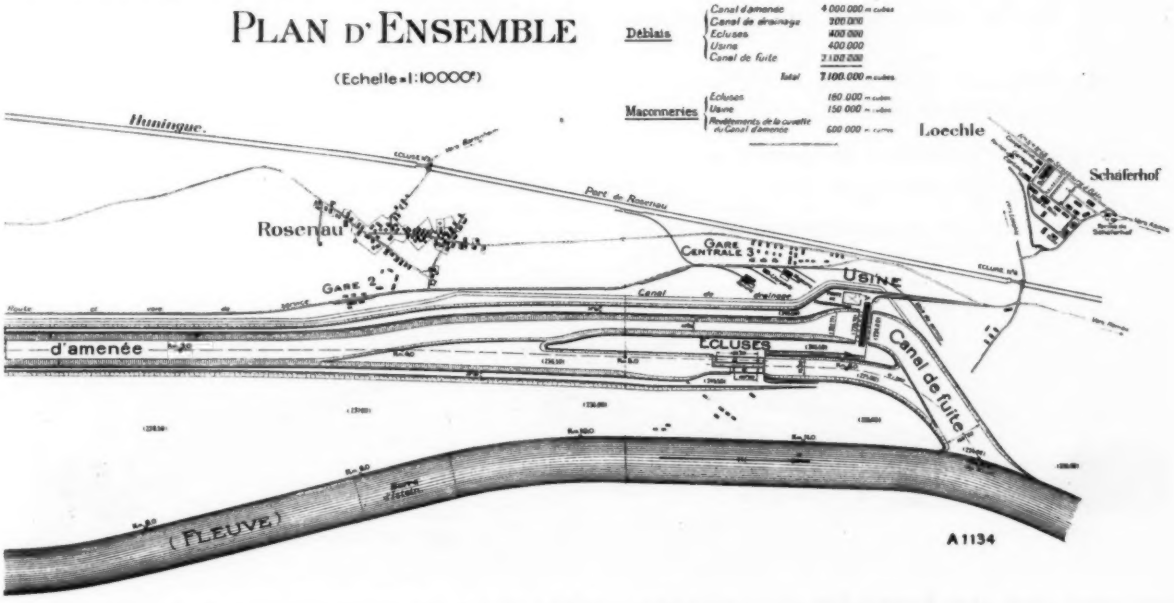
For the excavation works on this job there are about a dozen machines at work, including dragline excavators, steam shovels, skimmer scoops and chain-and-bucket type excavators. The largest of these last-mentioned is a huge machine mounted on rails, which weighs nearly 350 tons, and has buckets of 1-cubic-yard capacity. It is, in fact, a "dry land dredge."

Bucyrus-Erie Large Electric Draglines to Handle Major Part of Excavation

Due to the fact that there is a very considerable amount of material which can be excavated straight from the canal section and placed direct in the form of embankments along each side, it was decided to use large draglines for a great part of the work, and two Bucyrus-Erie Class-200 machines were purchased through Messrs. Brunner & Marchand, 44 rue d'Amsterdam, Paris, for the past ten years representatives of Bucyrus-Erie in France. Each of these draglines weighs 320 tons, and is mounted on caterpillars. They are electrically operated with Ward-Leonard control, taking power on board at 6000 volts. The digging radius is 55 metres (180 feet), and the dumping radius 44½ metres (147 feet). One machine is equipped with a 4-cubic-yard bucket, and the other with a 5-cubic-yard bucket. With a total operating crew of only three men, these machines are digging the canals and building the embankments in a single operation, thus effecting a very great saving by the elimination of labor, track, cars, locomotives, and all miscellaneous expenses in connection with hauling dirt.

Charles Moreau, Chief Engineer of the Project.

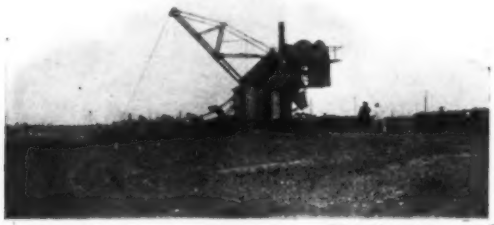
Du Rhin in changing the channel of the River Rhine.



Discharge Canal; Usine, Power Station; Gare, Railroad Station; Déblais, Excavations; Maçonneries, Concrete.

Trial Run with 4-yard Machine Shows Average Output of 269 Cubic Yards Per Hour

It is interesting to note that these Class-200 machines are the first large draglines ever put to work in Europe, and after the first machine was installed a trial run was made to determine the capacity of the dragline. The machine was using a 4-cubic-yard bucket. The duration of this trial was 150 working hours, and the average output obtained was at the rate of 207 cubic metres (269 cubic yards) place measure per hour. This was figured on the full 150 hours period, and, consequently, includes idle time, making move-ups, mechanical adjustments, etc.



Small chain-and-bucket type of excavator at work. Lower picture shows canal slope made by this type of machine without any hand dressing.

The digging rate, based upon net effective operating time, was 234 cubic metres (304 cubic yards) per hour.

The material was river sand and gravel, and part of the digging was under water.

World Record Claimed for Bucyrus-Erie 50-B Steam Shovels on Job

Of course, there is a considerable amount of dirt to be handled where transportation is unavoidable, and for this a number of steam shovels, of different makes, are used. These include two Bucyrus-Erie 2-cubic-yard 50-B steamers, which have given truly remarkable results. In fact, we are by no means certain that the performance of these 50-B's does not constitute something very like a world record, and it will be up to our American readers to correct us if we are wrong. The figures are as follows:

"Digging alluvial sand and gravel from the solid, depth of cut about 14 feet and width about 30 feet, loading trains of 4 cubic metres (about 5 cubic yards) capacity, 10 cars per train, as illustrated in the accompanying photograph: the average output of one of these shovels, *over a period of four months' work, was at the rate of 149 cubic metres (194 cubic yards) per hour.*"*

View of the canal as cut by one of the 200-B's.

This is based upon the total number of nominal working hours, and consequently, includes all idle time. The actual output of the shovel per net effective digging hour, during the same period, averaged 178 cubic metres (231 cubic yards) per hour. It will be realized that the handling of the trains and the fueling of the shovel was remarkably well organized, and, in fact, during this 4 months' period the effective digging time of the shovel averaged 81 per cent of the shift hours.

(Continued on Page 254.)

*Note: We are unable to locate any official record of 2-yard shovel output to exceed this. If any of our readers know of any equal or better record we will appreciate hearing from them. — *Ed.*

Above views show large Bucyrus-Erie electric draglines operating on the ten-million-yard Rhine project. On a test run one of these machines using a 4-yard bucket averaged 269 cubic yards per hour — total of 150 gross working hours.

Los Angeles starts San Gabriel Dam

Preliminary work on San Gabriel Dam, largest of the seven dams included in the flood control program of the Los Angeles Flood Control District, is well under way.

The dam is to be 432 feet high, 2,300 feet long at the crest, 660 feet long at the base and 20 feet wide at the top. The base will be 412 feet thick. The reservoir will have an area of 1482 acres and will be capable of holding 240,000 acre feet of water. San Gabriel River is the stream this huge concrete barrier is to restrain. Normally the river is peaceful, but at flood it does great damage to the fertile farms of its valley. The new dam will impound water to supply power and irrigation to industries and farmers of Southern California.

More than 1,200,000 cubic yards of material will be moved in building San Gabriel Dam. It is estimated that between four and five years will be needed to complete the job.

A great deal of equipment is already on the job. It includes four Bucyrus-Erie 50-B two-yard shovels, one Bucyrus-Erie Gas + Air, 1100-cubic-foot Sullivan air compressors, "Caterpillar" tractors, Plymouth thirty horsepower gasoline-powered locomotives, and Western side dump cars of thirty cubic yards capacity. A large part of the equipment will be electrically operated. A special transmission line carrying voltage equal to 6000 horsepower has been constructed to the dam site.

The first equipment was hauled in over a 11-mile railroad, constructed last year at a cost of $300,000. The track was laid in the center of a vehicle road, which has since been graveled and oiled for automobile use. One of the "Caterpillars" maintains the road so trucks and automobiles will not be delayed hauling in supplies and men.

Plans have been developed for a concreting plant and a sand and gravel plant, but probably neither of these will be built until the earth-moving operations are nearly completed. The concreting plant will have a capacity of 2,500 cubic yards every eight hours. It is estimated that 3,800,000 cubic yards of concrete will be needed for the dam.

E. C. Eaton, Chief Engineer for the Los Angeles Flood Control District, has complete charge of the project. He is assisted by E. B. Davey, resident engineer. The general contract was awarded to Fisher,

Getting roads in shape with "Caterpillar" and grader.

Ross, MacDonald & Kahn, Inc., of Los Angeles. The Nevada Contracting Company built the railroad. The engineering and construction camps were constructed by Fred F. Greenfield Company and Lutz Construction Company, both of Los Angeles.

FIELD NOTES

Put Blasting Caps in a Safe Place

The serious legal consequences which may ensue as a result of leaving blasting caps carelessly about where children can get them and play with them are shown in a number of lawsuits which have recently been filed in various parts of the country. In one of these, a boy lost his right eye and suffered injuries to his kneecap, which, it is claimed, crippled him permanently. As a result, his father is now suing for $50,000. It is claimed in this case that workmen of the defendant company, which was engaged in building a fence near the boy's home, left a number of blasting caps carelessly around.

In the state of Washington, a suit was entered for $6,500 on behalf of a twelve-year-old boy who played with blasting caps, and, as a result, had his thumb and two fingers blown off.

In Kentucky, legal representatives of an eight-year-old boy were awarded $6,500 for the loss to the boy of an eye and for other injuries caused by the explosion of a dynamite cap. The defendant in this case was a company which had done contracting work on a school which the boy attended.

Another suit for $25,000 has been filed before an Illinois court for the injuries caused to a ten-year-old boy who lost three fingers by an explosion of a dynamite cap. The suit is filed against a company doing some work near the boy's home.

These cases clearly show that damages are quite likely to be demanded when the injured parties feel that blasting caps have been carelessly left about where children can play with them and accidents result.

Made Water Show Up Plainly

There was a water glass on a cooling tank so located in the back of the cab that the water was hard to see plainly. By cutting a long, narrow strip of white paper, putting it in the middle of a short length of electrician's adhesive tape and sticking tape and paper to the back of the glass, the result shown above was obtained. The level of the water showed up as distinctly as a rock pile on a clear June day.

— Frank W. Bentley, Jr.

The EXCAVATING ENGINEER

A Monthly Publication Devoted to Excavating and Allied Subjects

REGULAR SUBSCRIPTION: $1.00 a year for 12 numbers.
SPECIAL SUBSCRIPTION: Upon application on card inserted in this number, subscriber's name will be placed on Rotating List, whereby he will receive The Excavating Engineer frequently (not regularly) free of charge.

THE EXCAVATING ENGINEER PUBLISHING CO.
F. O. Wyse, Manager-Editor Arnold Andrews, Associate Editor
South Milwaukee, Wisconsin
Printed in the U. S. A.

The business situation

April and the first part of May has kept up the good business record of the earlier months of the year. Manufacturing activity is being maintained either at or very close to capacity. The business horizon is remarkably free from complications, such as car shortage, price inflation and over-production, that often make their appearance in periods of active business.

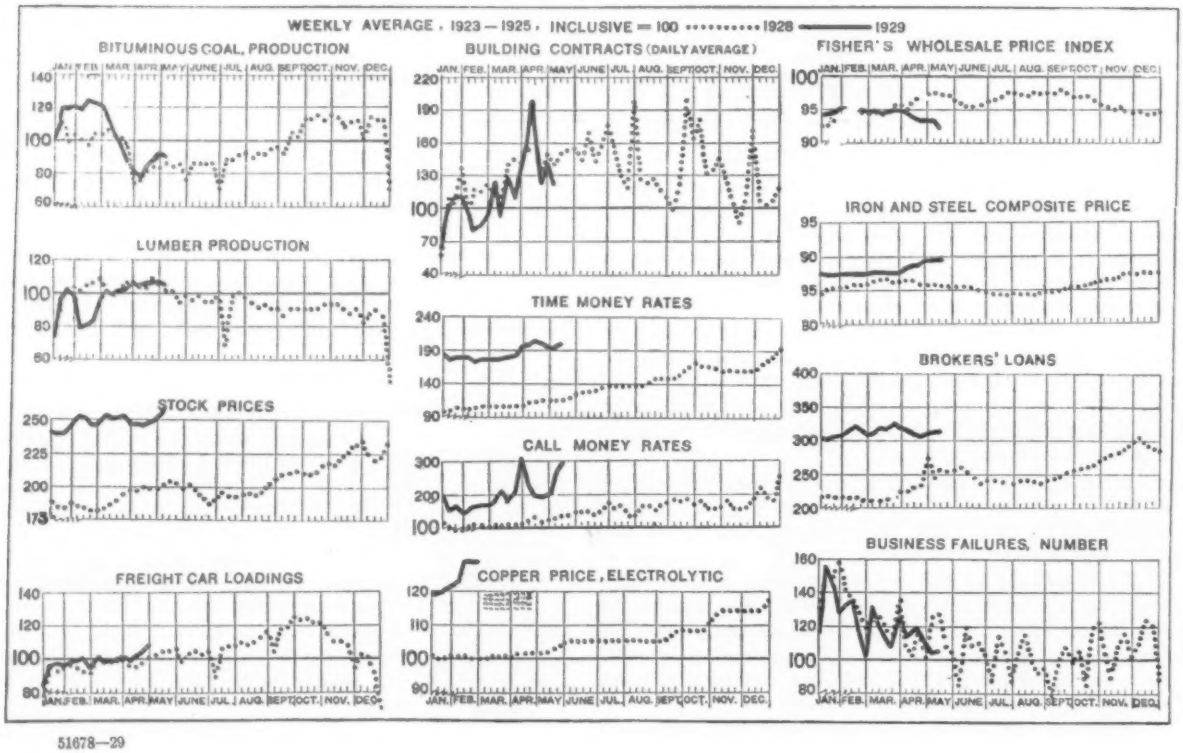
In the background, however, there seems to be one cloud that may or may not become serious. We refer to the high money rates, which so far, due to preferential rates granted by the banks to industry, have not in any large degree worked serious hardship upon business. It seems doubtful that the banks' protection of business from the high money rates which speculation has brought upon itself can last indefinitely. There is a possibility that the decreased activity, which some observers see in the building industry and place at the door of high money rates, will extend to other business activities and become more acute.

One of the most logical theories advanced as an explanation for sky-rocketing money rates lays the blame at the door of the present income tax law. Apparently many investors are holding securities (that they would otherwise sell) in order to avoid the extremely high income tax rates which would be charged against their profits were they to sell at the present time. In many cases these taxes would cut the profits very materially, and the speculator sits tight and holds the stock, making further purchases from borrowed money. Naturally this decreases the supply of stocks and also decreases the amount of money available.

This policy is really short-sighted, unless a change in the income tax law is to relieve the situation — a highly improbable happening. The wise investor today is holding his capital in liquid form — has reduced his holdings of securities and is waiting for a better market to purchase again.

For the man who is carrying stock on borrowed money, it seems as if the safest thing to do at the present time and, incidentally, the procedure which would most help the whole situation, is to get out of the market, pay the high tax rate and avoid a loss which may be much greater, but which will certainly come if speculation goes on at the rate it has been in the past few months.

WEEKLY BUSINESS INDICATORS


WEEKLY AVERAGE, 1923—1925, INCLUSIVE = 100 ..... 1928 ——— 1929
BITUMINOUS COAL, PRODUCTION
BUILDING CONTRACTS (DAILY AVERAGE)
FISHER'S WHOLESALE PRICE INDEX
IRON AND STEEL COMPOSITE PRICE
LUMBER PRODUCTION
TIME MONEY RATES
BROKERS' LOANS
STOCK PRICES
CALL MONEY RATES
BUSINESS FAILURES, NUMBER
FREIGHT CAR LOADINGS
COPPER PRICE, ELECTROLYTIC
JAN. FEB. MAR. APR. MAY JUNE JUL. AUG. SEPT. OCT. NOV. DEC.

51678—29

New construction work contracted for in the territory east of the Rocky Mountains during the past month reached the second highest April contract total on record, and was the largest monthly construction total that has been recorded since June, 1929, according to F. W. Dodge Corporation. Building and engineering work contracted for during the month of April in the 37 Eastern States amounted to $642,060,500. This figure was almost equal to the April 1928 total and it was 32 per cent ahead of the March 1929 total.

Of the eight districts reviewed below, Texas was the only territory showing a decrease when compared with the preceding month's records, and five of the districts had increased contract records when compared with the April 1928 records.

Analysis of last month's building and engineering record showed the following important classes of work: $256,779,700, or 40 per cent of all construction, for residential buildings; $152,126,900, or 24 per cent, for public works and utilities; $77,988,400, or 12 per cent, for commercial buildings; and $68,229,500, or 11 per cent, for industrial projects.

During the past four months there was $1,897,889,800 worth of new construction work contracted for in the 37 states east of the Rocky Mountains, which was a loss of 11 per cent from the amount contracted for during the corresponding period of last year.

New work reported in contemplation in April reached a total of $940,249,100. This figure was 6 per cent in excess of the amount reported in the preceding month, and it was 13 per cent ahead of the amount reported during the corresponding month of a year ago.

Our front cover

The illustration on our front cover depicts the excavation of the basement for the new Brighton High School in Boston, Massachusetts. The contract for this job was awarded to the New England Rock Excavating Company of Boston, Massachusetts (Albert J. Welch, President; Stephen J. Boylan, Treasurer; and John W. Welch), who despite extremely poor weather conditions rushed the job through to completion a month ahead of schedule.

As the material excavated was about fifty per cent rock, proper planning of the work was highly important in order to keep things moving smoothly. The total yardage amounted to 65,000 cubic yards and this was dug by four Bucyrus-Erie steam machines, two Type B and two Type B-2 shovels.

This job was marked rush and so we see this fleet of Bucyrus-Eries making the dirt fly. Note double spotting at the Type B on right and the wide traction under the Sterlings which kept them hauling in spite of rainy weather.

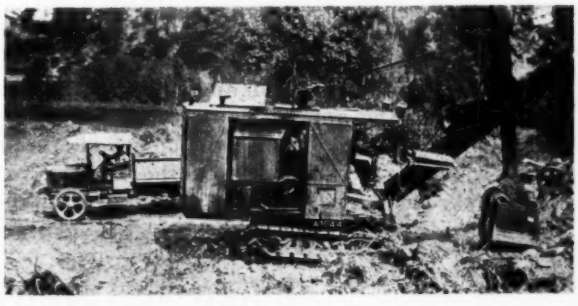
Due to the fact that the school location is on the side of a steep hill and is of very irregular section, maneuvering in and out of small places as well as up and down steep grades were duties which the shovels were called upon to do frequently. Such operators as Jim Gillis, Gene McGee, Danny Keefe, Sam Marshall, and Jack Brophy, however, found this tough going just to their liking, and got out the dirt as though they were in a gravel bank.

The material was nearly all wasted, and was hauled away from the job in trucks. Both Sterling and Mack trucks were used and were of the new style high-speed, heavy-duty, dual-pneumatic type. No yardage records were made, but on several days over 3,000 yards of material were handled.

The point outstanding about this job was the speed in which it was completed. A tough job with poor weather is a bad combination, but good serviceable shovels, excellent runners, and efficient management proved to be the right answer to this problem.

Trucks versus cars argument waged on Chumstick Cut-off

(Continued from Page 246.)



Here is the Bucyrus-Erie Gas + Air that made the record of 1066 cubic yards in a single day's run.

were hired, with drivers, at $3.00 per hour each, making a total of $96.00 for the day. Three men were employed on the dump and one laborer on road upkeep. Rental was charged on the shovel on the basis of $25.00 a day. Gas and oil for the shovel cost $10.20 delivered. The shovel crew consisted of one operator and one pitman. There was also a foreman in charge of this operation. Figuring costs on this basis, and the net yardage at 1066 yards, the total cost in place for this record run figures 16.2 cents per cubic yard.

The record set by Clemens was in danger several times, but, to the best of my knowledge and belief, it still stands. I take my hat off to the man who has it bested.

She: "Did I ever show you the place where I hurt my hip?"

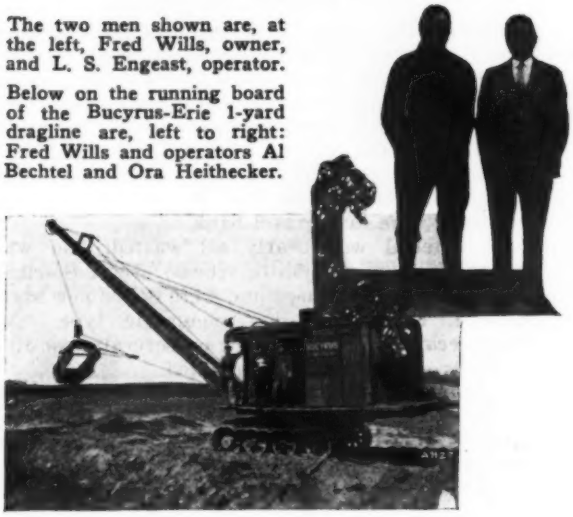
He (eagerly): "No — no —."

She: "All right, we'll drive over there."

Fred Wills digs Indiana drainage ditch with Diesel dragline

The two men shown are, at the left, Fred Wills, owner, and L. S. Engeast, operator.

Below on the running board of the Bucyrus-Erie 1-yard dragline are, left to right: Fred Wills and operators Al Bechtel and Ora Heithecker.



A tireless worker with personality plus, Fred Wills is one of the most interesting drainage contractors in the business. He is just completing excavation for the William Pierce Ditch in Delaware County with his one-yard Diesel dragline, and in spite of bad season he will have the work completed in very good time. Mr. Wills has encountered unusual hard-pan and gravel conditions in excavating the approximate 100,000 yards required for this ditch. During the month of March, which was none too good as far as the weather conditions were concerned, the Wills organization obtained an estimate of over 25,000 yards, using a double shift when possible. The Bucyrus-Erie dragline used is about six years old, and is still "hitting the ball" with the best of them. Mr. Wills states that, on the present job, the dragline averages 17¾ gallons of fuel oil per ten-hour shift, which costs about seven cents per gallon delivered. No shut-downs or delays have been experienced on account of the machine, which is equipped with a three-cycle Atlas Diesel 8½ by 10½-inch engine. The machine has an average digging capacity of 100 cubic yards per hour at a fuel cost of twelve cents, which no doubt has a considerable bearing on Mr. Wills' enthusiasm regarding Bucyrus-Erie equipment.

Says Mr. Wills: "The writer has been personally in touch with this machine since purchased, having operated it for long periods in new and cleanout drainage work in hardpan, gravel, gumbo, clay, etc., in Southern and Central States and the 30-B would get from twenty to thirty-five thousand yards average monthly estimates. In ideal operating conditions I believe we could get fifty thousand yards in a month with this machine.

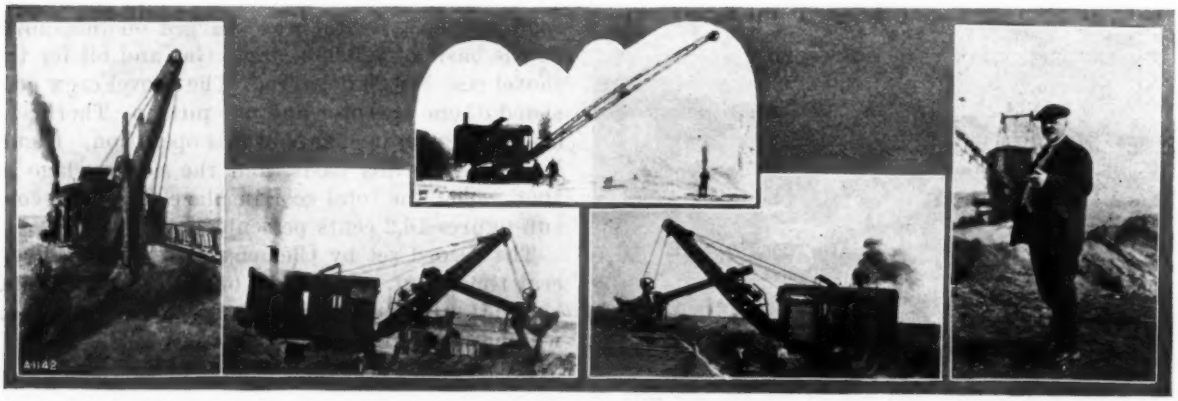
"I hear reports of the Diesel being in the experimental stage but do not agree as my experience has been far from an experiment. Of course, the first few months we had some trouble due primarily to the method of installation, but the last few years the 30-B is the steadiest, most reliable machine I ever saw. Our fuel cost is about 12c per hour and lubricating oil averages not over a pint and quarter per hour. The 30-B has stood terrible abuse in hard digging — double shifting of 24 hours per day as we operate 12-hour shifts."

Changing course of River Rhine

(Continued from Page 250.)

Best Single Shift Performance 260 Cubic Yards Per Hour

The best performance put up by this shovel to date was in December last, when on one 8-hour shift it loaded 410 cars, equivalent to a steady average rate of 260 cubic yards per hour.



Remarkable efficiency has been shown by Monsieur Moreau and his organization in organizing the handling of trains, fueling of shovels and so forth, in establishing something very like a world record for 2-yard shovel excavation on the River Rhine project. M. Moreau and several views of the 50-B shovel-draglines are shown in the above group.

This machine holds the record for high output and low up-keep of all the steam shovels engaged on this job (about eight).

It has also made a good name for itself when operating as a dragline, with 55-foot boom and 1-yard bucket, side casting. Its average, with this equipment, for the entire month of December last, was 95 cubic metres (124 cubic yards) per hour, based upon total nominal working hours, and equivalent to 108 cubic metres (140 cubic yards) based on net effective digging time.

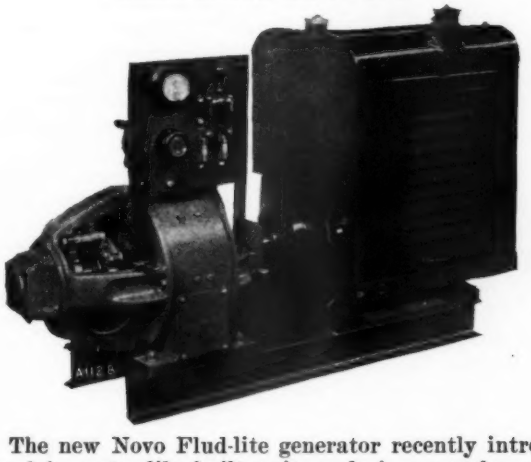
In addition to all these mechanical means of excavation, there is an army of some 1500 laborers employed on this project, and, of course, numerous field engineers and personnel.

The company has built for themselves a very fine field office, round which a little town is quickly springing up on the most modern lines.

Among the engineers assisting M. Moreau are M. Petitalot, M. Collange, and M. Pierre Moreau (son of M. Chas. Moreau).

EQUIPMENT YOU OUGHT TO KNOW ABOUT

Novo Introduces Portable Light Plant Excellently Suited to Contractor's Use



The new Novo Flud-lite generator recently introduced is a sturdily built unit made in a number of sizes from two to four cylinders, one and three-quarters kilowatts to five kilowatts, and handling from 35 to as high as 100 fifty-watt lamps (17 to 50 one-hundred-watt lamps, etc.) depending upon the size of the unit purchased. The outfits weigh from 760 pounds on the small size to 1200 pounds on the largest size, and deliver 125 to 250 volts direct current. An interesting feature is that surplus power is provided for driving auxiliary machinery besides the generator. This power is available even when the generator is operating under full load, for the operation of forge blowers, grinders, or small air compressors, which may be belted from the auxiliary pulley provided. A Novo gasoline engine is used to furnish the power for operating generators of Westinghouse design. The latter are provided with commutating poles to eliminate commutator sparking, and are entirely self-regulating under varying conditions of load, requiring no rheostat or other means of regulation. This feature, it is claimed, makes the unit foolproof. The fuel tanks of the gasoline engines are large enough to provide for ten hours operation. The Novo Rollr engines operate at 1150 r.p.m., and are furnished with Timken tapered roller main bearings.

Further information regarding these Novo light plants, which are excellently adapted for furnishing light to camps, on dumps and for any night construction operations, may be obtained by writing to the *Novo Engine Company at Lansing, Michigan,* referring to *The Excavating Engineer.*

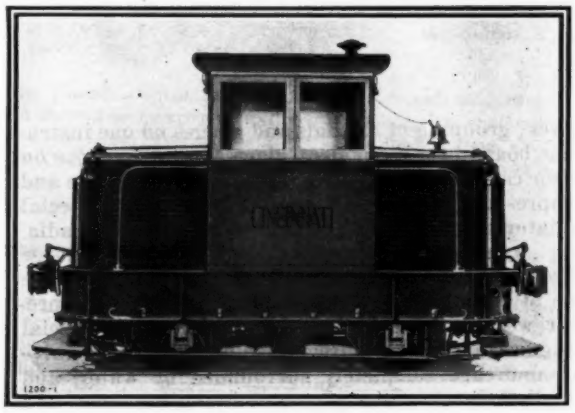
New Cincinnati 1200 Series Gasoline Locomotives

The Locomotive Division of *The Cincinnati Car Corporation, Winton Place, Cincinnati, Ohio,* announces its new 1200 Series gasoline-powered, gear-driven, industrial locomotives, claiming greater simplicity and durability, better performance, greater ease in operation and servicing, and insurance of more continuous operation. They are rated on the basis of performance, or the amount of work done in a given time, instead of simply a locomotive weighing so many tons. Among the particularly important features that they stress are the following:

Heavy, one-piece, steel main frame, with heavy sub-frame carrying as a unit the power plant, clutch, transmission and air compressor, all rubber insulated from main frame to cushion against service shocks.

Heavy, rugged engines, governed at safe operating speeds and equipped with latest accessories, such as spray-pump primer for starting, oil-purifier, gasoline-strainer, temperature and gasoline gauges located in cab, and large and efficient radiator to insure proper cooling in hottest weather.

Clutch embodies advantages of both dry and oil clutches and eliminating objections heretofore found



to both types in locomotive service. Demountable without disturbing engine or transmission.

Speed changes, through four-speed, forward and reverse, transmission, positively and quickly made by shifting clutches instead of gears, avoiding loss of train momentum.

Amidship type cab, with glass all around, affords unobstructed vision in all directions, and permits short and direct connection for all operating levers without bell cranks and ball joints. Automatic couplers at either end can be operated from inside of cab. All operating movements are right-handed, same as in modern automobile, and natural instead of awkward.

All models built in a variety of sizes and track gauges, and adapted to handling either industrial or railroad cars.

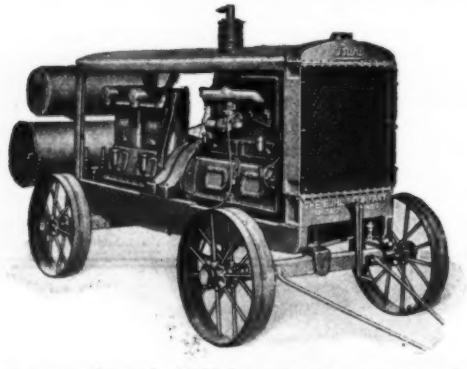
The Cincinnati Car Corporation, Winton Place, Cincinnati, Ohio, will be glad to send you complete information in regard to the new 1200 series gasoline industrial locomotives if you will write to them referring to *The Excavating Engineer.*

New Line of Buhl Compressors

Redesigned from the ground up, the new line of Buhl Compressors embodies all possible improvements in this line of equipment. Many of the features incorporated were developed by Buhl engineers as an outgrowth of their many years of experience in the air compressor field, and in addition many features have been adapted from other power-driven machinery, such as motor trucks and tractors.

While economy of air compressor production has been secured, the desire to build compressors that would be as near trouble proof as possible and could stand up through many years of continuous service has been kept constantly in mind.

Important features in the new design include interchangeable parts on all sizes and types, such as connecting rods, pistons, bearings, piston rings and

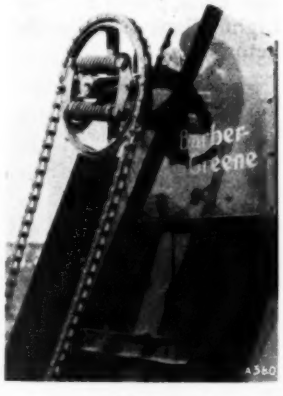


valves; grouping of all dials and gauges on one instrument board in a convenient place similar to those on motor cars; Buhl Bell Housing connecting engine and compressor together in perfect alignment; special radiator guard giving extra protection to the radiator; water-cooling system providing extra large waterways, and waterway line extending below the line of the piston; stroke of piston designed to prevent wearing of cylinder egg shaped; Buhl special designed dual valves with intake and discharge valve in same cage completely surrounded by water, and set directly over the piston, eliminating heat and avoiding separate cylinder heads. There are many other special features incorporated in the design of these new portable compressors, which are obtainable in sizes for 36, 55, 90, 100, 110, 220, and 320 cubic feet displacements per minute. These compressors can be supplied on any mounting desired.

Further information may be obtained by writing to the *Buhl Company, 407 South Dearborn Street, Chicago, Illinois,* and referring to *The Excavating Engineer.*

New Overload Release Sprocket for Barber-Greene Loader

The Barber-Greene Company, Aurora, Illinois, has recently perfected an automatic overload release sprocket for its large and small bucket loaders. It is claimed that this release sprocket protects the machine against all strains on the bucket line — and is superior to the "safety breaking bolt" method of avoiding strains on such machines.



The sprocket, as the photo shows, has two main elements — being, namely, the outside race —and the inside springs. The chain runs around the sprocket teeth on the outside of the race. The race itself has two raised parts — which are in contact with the two rollers of the springs. The spring part is keyed to the shaft. Ordinarily the pressure of the spring rollers against the raised part of the race is sufficient to make the entire sprocket turn together — thus turning the head shaft and the bucket line. However, when a large boulder or any other big solid object tends to stop the bucket line, the springs compress — thus allowing the sprocket to run and the head shaft to stand still. Every half revolution thereafter the spring rollers come in contact with the raised parts of the race and force is put on the bucket line. Usually this will free the object causing the trouble and the machine goes on running.

If, however, the trouble remains — the only problem is to remove the rock — and the sprocket is in running position again.

This is practically the same sprocket that has been successfully used on the Barber-Greene vertical boom ditcher — and does not hold the machine up even for the length of time required to fix a "safety" pin.

W. A. Riddell Company Adds New Model to Line of Warco Graders

The W. A. Riddell Company has added to their line of road graders a new model known as the BM, and have lately started shipping this grader from the factory, at Bucyrus, Ohio. The same sturdy frame construction which characterizes all other Warco graders is a feature of the BM. Power is furnished by a McCormick-Deering 10-20 tractor. The model BM is center controlled, and is, of course, one-man operated. Designed principally for maintaining, being a light-weight machine, it is also adapted for general grading.

SHOTS FROM THE FIRING LINE

Road Builders to Meet at Atlantic City Next Year

The next convention and road show of the American Road Builders' Association will go to Atlantic City, New Jersey. The nation's largest assemblage of men, machinery and materials will gather for the 27th annual event, January 11-18, 1930.

Frederic A. Reimer, consulting engineer of East Orange, New Jersey, is the incoming president. R. Keith Compton, Director of Public Works, Richmond, Virginia, becomes a director. James H. MacDonald, New Haven, Connecticut, continues his years of service as treasurer, and Charles M. Upham, Washington, D. C., continues as Secretary-Director. Other new directors are J. S. Helm, Standard Oil Company, New York, and Arthur W. Dean, Chairman, State Highway Commission, Boston, Massachusetts. Charles E. Grubb, County Engineer, Wilmington, Delaware, becomes head of the County Highway Officials' Division, succeeding T. J. Wasser, Jersey City, New Jersey.

Atlantic City was chosen for the 1930 meeting after a long and vigorous fight on the part of Cleveland to have the road builders return there. Cleveland has entertained the past two gatherings, the most successful in the organization's history. St. Louis also was a spirited bidder for the meeting.

New England Notes

BY J. C. ALEXANDER

Callan Construction Company, general contractors of Bristol, Rhode Island, are just starting a 7.8 miles road contract between Westminster and Bellows Falls, Vermont. J. F. Foley (center of above picture) is General Superintendent and his brother Thomas J. Foley (left of above picture) is Superintendent of the Westminster job. The brothers (with J. Maynard, Bucyrus-Erie erector) are standing in front of the car containing a new Bucyrus-Erie B-2 steam shovel shipped in for this Westminster job. This machine is their fifth Bucyrus-Erie and the second within a year.

M. F. Roach & Sons of East Bridgewater, Massachusetts, have been awarded a section of state highway in Provincetown, Massachusetts. They have purchased a new Type B-2 steam shovel for this work. Ed. Parker will operate this machine.

Joseph McCabe, Inc., of Boston has just been awarded a very interesting job in Vermont. Mr. Giovaninni is no longer with this company, having returned to Italy.

Vogel and Hadley, well-known and well-liked contractors, of Manchester, New Hampshire, are now engaged in the sand and gravel business on a large scale, with plants in Manchester and Lebanon.

The Outdoor Road Show was held this past month in Cambridge along the banks of the Charles River. A number of our good engineer friends visited the Bucyrus-Erie exhibit, which consisted of a Type B-2 steam, Gas + Air, and Type 1030 shovel. Among the engineers we remember being present were Jimmy Fitzpatrick, Bob Gray, Aaron Redcay, Billy Dwyer, Dan Keefe, Leo Morin, Joe Ambrose, Frank Marino, Guy Sheaff, Jack Brophy, Eddie Brophy, L. H. Skelton, Ernest Wallace, George Mank, Ralph Susi, Jimmy Susi, Croce Verrochi, Fred Cleaves, Jack McDermott, Gil Peloquin, Pat Roach, Louis Julian, Herbert Wright, Mr. McDonald, and many others.

Eastern Notes

Robert M. Rogers of Brentwood, Maryland, is operating a 20-B Bucyrus-Erie for the District Foundation Company, Inc., of Washington, D. C.

Eastern Pennsylvania Notes

BY T. H. BARRETT

Duquesne Slag Products Company are erecting a new crushing plant at Topton, Pennsylvania, and will operate the old slag lands at that place. W. S. Mertz is the superintendent in charge and Harry Winterstean is running the Bucyrus-Erie 41-B in the pit.

National Slag Company of Allentown, Pennsylvania, have started sand and gravel operations at Riegelsville, Pennsylvania. The plant will have a capacity of 1500 tons a day by August 1st.

The Syncline Contracting Company of Frackville, Pennsylvania, have asked for bids on a large coal stripping operation three miles west of Frackville. The operations will be delayed until the railroad connection is made. Frank Neiman is president and general manager of the above company.

Timothy Burke, Inc., of Scranton, have just completed a track job for the Oliver United Filters Company at Hazleton. Frank Prosser was the superintendent.

Three jobs aggregating **1,500,000 yards** have been started by the **Central Pennsylvania Quarry Stripping and Construction Company** for the Reading Coal and Iron Company at Locust Gap. The weather has helped them to a flying start.

A. E. Dick of Hazleton reports good progress on his new stripping at the Hammond Colliery of the Reading Coal and Iron Company. His 75-B electric shovel is doing great work.

The 320-B operations of J. Robert Bazley for the Cranberry Creek Coal Company are up to schedule. Mr. Bazley reports a record yardage for April and May. He intends to take moving pictures of his various jobs soon.

The Rhoads Contracting Company of Ashland have completed their first month's operation of the dragline stripping near Glen Lyon, Pennsylvania, for the Susquehanna Collieries Company. They uncovered coal in the first week's operation. They have, at present, six other jobs, some of which are working "double shifts."

The General Crushed Stone Company of Easton, Pennsylvania, are adding an Amiesite plant for their main crushing plant at Leroy, New York.

The following quarries shipped stone for **the new Columbia Wrightsville bridge over the Susquehanna:** Bethlehem Steel Company (Steelton Quarry), H. E. Baker (York) and York Valley Lime & Stone Company of York, Pennsylvania.

SHOTS FROM THE FIRING LINE — Continued

Stone & Webster Company are erecting the new 10,000-ton breaker for the P. & R. Coal and Iron Company at Locust Summit, Pennsylvania. Preliminary grading has already started.

Pittsburgh and Vicinity

BY J. S. WEAVER

HENRY LLOYD GILLESPIE

Henry Lloyd Gillespie, native Pittsburgher and retired New York financier, died recently at his suite in Hotel St. Regis, New York, following a brief illness of pneumonia. Mr. Gillespie was a son of the late T. A. Gillespie, nationally-known contractor, who constructed the Pittsburgh filtration plant and built the aqueduct tunnel under the Hudson River at Storm King, New York.

ROBERT J. VANSTAND

Robert J. Vanstand, for more than thirty years General Manager for the Ferguson & Edmondson Company, died Sunday, May 11, 1929, in his home in Crafton. A contractor of note, Mr. Vanstand assisted in the construction of the Wabash Railroad into Pittsburgh, supervising the driving of the Mt. Washington Tunnel. He completed the first five miles of the railroad. He carried on for his firm a number of important railroad developments, among which were the large gravity yards built by the Pennsylvania Railroad at Dennison, Ohio, the new yard facilities and branch line construction for the Michigan Central at Toledo and other projects. He is survived by his widow and one daughter, Mrs. T. C. Herbert of Los Angeles, California.

The Harrison Construction Company have broken a lot of records for excavating on their Monument Hill project.

Clare McDermott, McKees Rocks, Pennsylvania, has his contract on the Windgap Road well under way, which is one of the most important roads in Western Pennsylvania. Bucyrus-Erie and Marion shovels are being used.

The John F. Casey Company were awarded the contract for the construction of the Saw Mill Run Boulevard project by Allegheny County Commissioners at a total bid of $848,541.80.

All the contractors on the new Pittsburgh & West Virginia Railroad report that good progress has been made in the past month, despite the amount of time loss on account of rain.

The Davis Coal & Iron Company's new plant on Neville Island will be completed about June first. This plant will be one of the most up-to-date by-product mills in the United States. The Rust Engineering Company and the Koppers Company are doing the construction work.

Frank Lee James, the well-known Johnstown, Pennsylvania, contractor, was a visitor in the Pittsburgh office a few days ago. Mr. James is very busy getting his State Highway work under way in Indiana County.

Steam shovels and other road-building equipment have been unloaded at the north and south branches of Saw Mill Run Boulevard by the **John F. Casey Company.** This work will be under the supervision of Walter Walsh. There are three sections in the boulevard, the south branch leading east from the south end of the Liberty Tunnels to Overbrook Borough; the north branch leading from Warrington Avenue

TRU-LAY

outperforms because it is preformed . .

You can test TRU-LAY preformed construction for yourself. Get a sample. Lift a strand, then replace it. Reverse the strand if you wish. You will find each wire and strand in Tru-Lay is not twisted; it is laid in place. There are no locked-up stresses.

Your name and address bring a sample

AMERICAN CABLE COMPANY, Incorporated
New York Central Building, 230 Park Avenue
New York, N. Y.

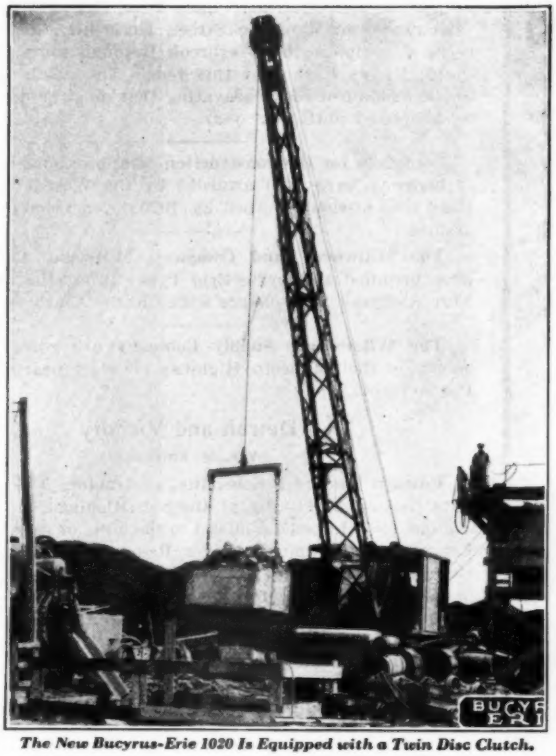
District Offices:
Chicago Detroit Philadelphia Pittsburgh Tulsa San Francisco

PREFORMED WIRE ROPE

TRADE TRU-LAY MARK

(Reg. U. S. Pat. Off.)

Examine a Tru-Lay sample for yourself



The New Bucyrus-Erie 1020 Is Equipped with a Twin Disc Clutch.

Twin Disc Gear Drive Clutch with Fibre Driving Plate Used in Bucyrus-Erie 1020

When Only The Best Will Do

ANY equipment manufacturer whose product is used in a new Bucyrus-Erie machine has good reason to feel complimented.

Bucyrus-Erie have a wonderful reputation to maintain—a reputation created and established on many of the largest construction projects the world has ever seen. When a concern like this decides to build a new machine it is a certainty that executives and engineers will give their best thought and most careful consideration to the performance of the machine as a whole and to every component part.

Because the new Bucyrus-Erie 1020 is powered with an internal combustion engine it was necessary to use a clutch. The company could easily have built their own clutches, but they elected to use a Twin Disc unit.

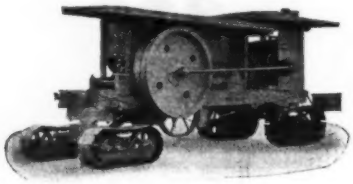
The inference is plain. When your next clutch problem comes up, give us a chance to show you what Twin Disc clutch quality and service can do for you.

TWIN DISC CLUTCH COMPANY

RACINE WISCONSIN

LOOMIS "CLIPPER" DRILLS GIVE YOU

MINIMUM Repairs MAXIMUM Life
MINIMUM Delays MAXIMUM Footage



"CLIPPER" Blast Hole Drills are simple, rugged, reliable and fast. Combination of all these essential qualities to a superior degree has established for "CLIPPER" Blast Hole Drills a reputation for unmatched quality.

They are built for hard drilling and hard usage. They have been developed, improved and perfected through years of manufacture. They have stood the test of long hard field service in all kinds of quarries and mines. They have satisfied numerous owners. They will satisfy you.

But you will wish to investigate. May we send you catalogues and refer you to owners who can tell you what "CLIPPERS" are doing for them.

THE LOOMIS MACHINE CO.
(Established 1842) K Street, Tiffin, Ohio

SHOTS FROM THE FIRING LINE — Continued

near the tunnel entrance to Woodruff Avenue, West End, and a spur through McKinley Park from Saw Mill Run Boulevard proper to Hausman Street, Knoxville. Mr. Walsh expects to complete the Overbrook Borough south branch and the McKinley Park spur this year. The north branch, due to the amount of rock excavating that must be done, will not be completed until next year.

Contracts for the construction of approximately 100 miles of highway have been awarded by the West Virginia State Road Commission on April 28, 1929. Construction will start at once.

The Millwood Sand Company, Millwood, Pennsylvania, have installed a Bucyrus-Erie Type "B" at the above plant. Alex Kastyzak is in charge with Charles Clark at the levers.

The Wilmerding Supply Company are going full speed ahead on their Lincoln Highway contract near Greensburg, Pennsylvania.

Detroit and Vicinity

BY P. M. RICHARDS

Edward Bodette & Sons, Inc., contractors of Toledo, Ohio, have just started to dig at Monroe, Michigan, a fresh water channel from Lake Erie inland to the mills of the Consolidated Paper Company and the River Rasin Paper Company. The channel will be sixty feet wide and twelve feet deep for a distance of approximately three miles. There will be built a pump house to handle the water from the various mills to the above companies. It is interesting to note that these paper mills use daily considerable more water than the entire City of Monroe. In addition to the above dredge operations the Bodette organization will have considerable dykeing to do in the Monroe marsh. All of this work is at the site of

THERE IS ONLY ONE BEST— THAT'S GATKE

Asbesgraphite **is the highest developed Brake and Friction Material.**

1. IT HOLDS BETTER. No jerking or grabbing.
2. IT WEARS LONGER without adjustment.
3. IT FITS PERFECTLY. Made to machined perfection.

And do not forget that we guarantee satisfactory service. The cost of a trial installation is negligible. An investigation which will prove profitable to you. Write us today.

It is not Asbesgraphite unless it is marked "GATKE"

We also manufacture Asbestos Brake Lining in any width, thickness or length

ALL SIZES CARRIED IN STOCK

FOR
Bucyrus-Erie,
Monighan, Osgood,
Northwest, Byers,
Ohio Locomotive,
Industrial, P. & H.,
Keystone Driller,
Massillon, Thew,
Erie, Page,
Moore Speedcrane,
Link Belt,
Marion, Bucyrus,

THOMAS L. GATKE
Manufacturer
Chicago Office: Railway Exchange Building
Factory: Winona Lake, Indiana

ASBESGRAPHITE
ASBESTOS COMPOSITION

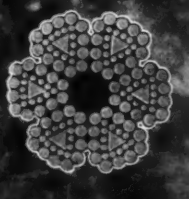
FOR
Allis-Chalmers,
Nordberg,
Wellman-Seaver-Morgan,
Ottumwa Iron,
Lidgerwood, Mundy,
Flory, Mead-Morrison,
Orr & Sembower,
Clyde, American,
Lambert,
Thomas Elevator
And Others.

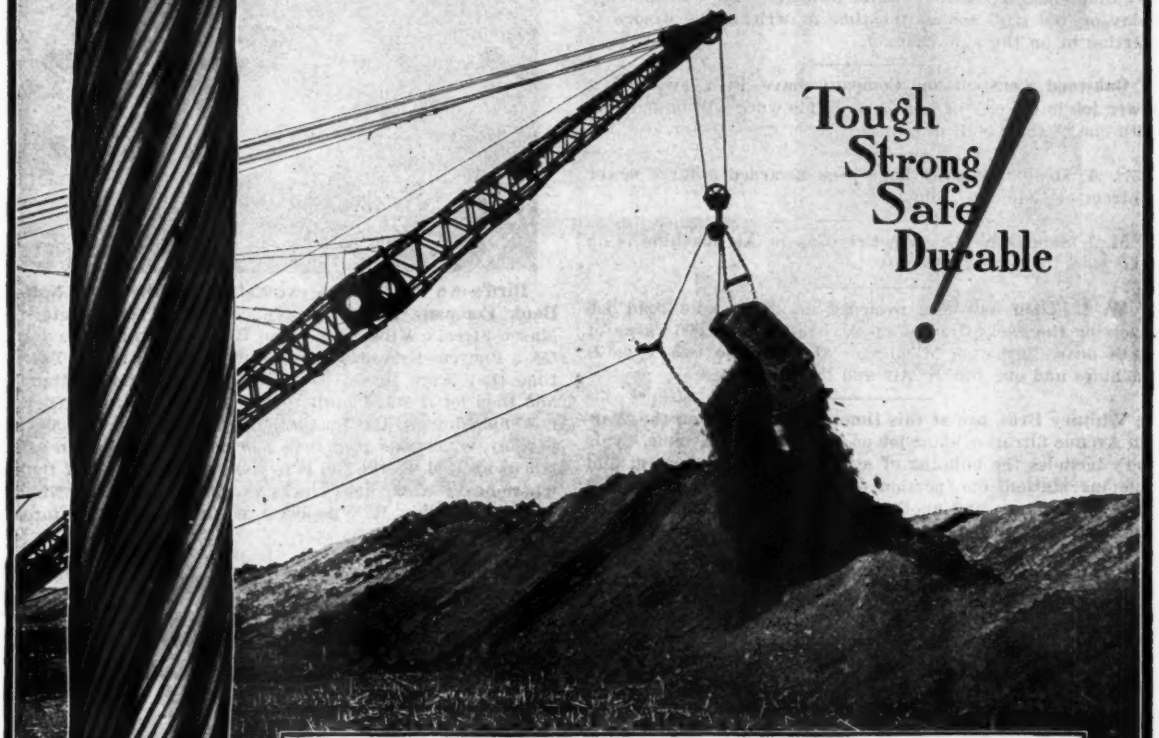
"HERCULES"

RED-STRAND

REG. U.S. PAT. OFF.

WIRE ROPE





Tough
Strong
Safe
Durable

Wire Rope Durability Saves Wire Rope Dollars

True wire rope economy depends on the amount of yardage a wire rope can handle for each dollar of its cost.

If you would reduce your wire rope expense to a minimum, give "HERCULES" (Red-Strand) Wire Rope a chance to show you what it can do. Try it on your hardest work and keep a record of its relative cost "per unit of work done." Its extensive use is largely due to just such trials.

Made Only by **A. Leschen & Sons Rope Co.** Established 1857

5909 Kennerly Avenue
ST. LOUIS

New York Chicago Denver San Francisco

Distributors at over 100 different points. The name of our Distributor in any particular locality will be furnished gladly upon request.

SHOTS FROM THE FIRING LINE — Continued

the mammoth new plant of the Newton Steel Company now under construction.

The Bucyrus-Erie dipper dredge "Bodette No. 3" was towed from Toledo to the site of the new Bodette operations on Sunday, May 5th, by the tug "Dunkirk" of the Great Lakes Towing Company, Toledo. The tug pilot lost his bearings, and ran aground on a sandbar two miles south of the Monroe Light, and was on about seven hours when a change of wind floated the tug off the bar; the dredge was in no danger at any time; having sufficient water to float. This was the only delay on the trip, and at the time of writing the dredge is starting in on the new channel.

Oakwood Construction Company have been awarded a sewer job in the city of Dearborn. This work will be handled with one of their 50-B draglines.

S. A. Healy Company have been awarded a large sewer contract at Columbus, Ohio.

M. I. Sabadash's Bucyrus-Erie Gas + Air machine is on road work in Oakland County.

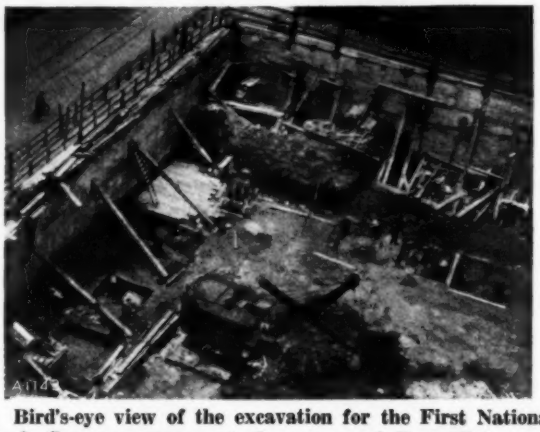
W. L. Thon has been awarded an eleven-mile road job involving the excavation of approximately 3,000,000 yards of earth near Clarkston, Michigan. He will use two Type B machines and one Gas + Air and one Northwest.

Whitney Bros. are at this time driving piling on the Warren Avenue filtration plant job on West Warren Avenue. This work includes the building of a complete filtration plant and pumping station, one portion of which has been excavated by O. J. Trudeau and another section is being excavated by the J. A. Mercier Brandon Company.

The Mark R. Hanna Company and the Northern Construction Company are both making rapid progress on the Detroit land sections of the Detroit River Tunnel.

Wisconsin Notes

BY E. P. DOYLE



Bird's-eye view of the excavation for the First National Bank Company garage at the corner of East Water and Mason Streets, Milwaukee. The Wussow Brothers have their GA-2 Bucyrus-Erie on this job for the second time. The first time they were forced to dig around a padlocked building and then let it stand until the time on it expired. They are now finishing up the foundation. They averaged 600 yards per day, which was good time considering the delay in getting trucks spotted, as the job is in the downtown part of the city where heavy traffic kept trucks waiting to get in. J. Nimmergood is operating, R. Wussow is the fireman, and the foreman is F. Fisher.

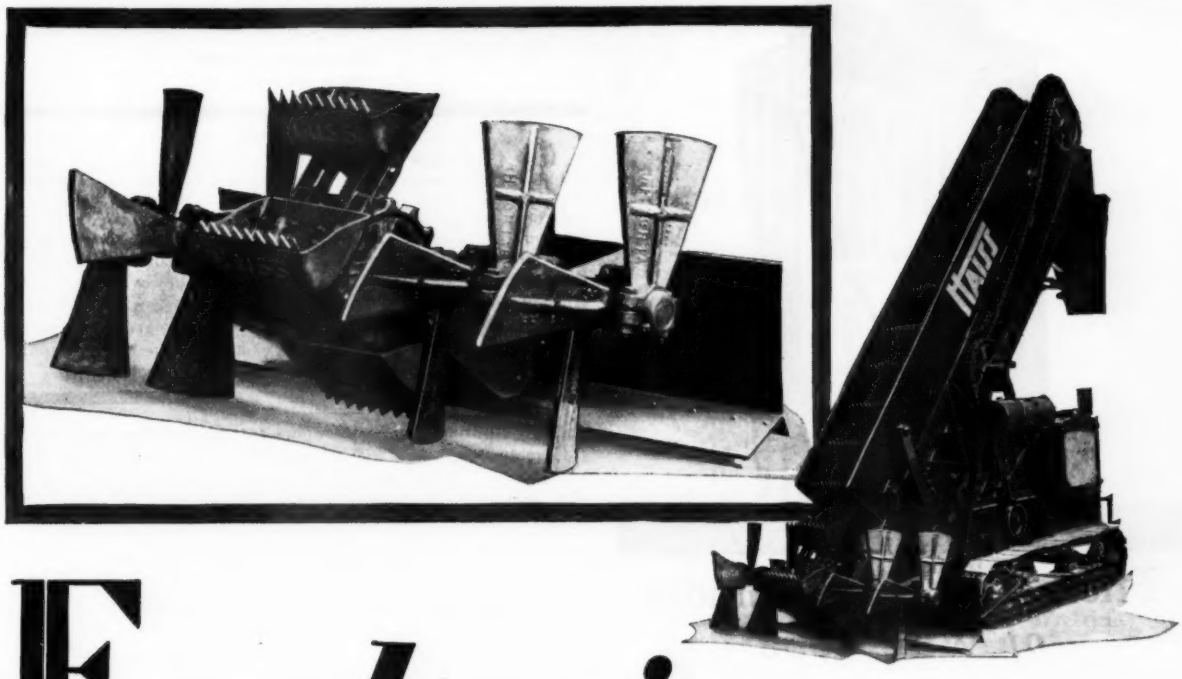
Into every Koppel Car is built that intangible factor that reflects the experience and facilities of its builders—a quality that assures long satisfactory service with a minimum of upkeep.
KOPPEL
KOPPEL CARS
The Koppel Line is complete—Square Box Dump —Automatic Air Dump —V Shaped and Rocker Cars—Quarry Cars—cars for every use to fit every requirement.
Send for literature.
KOPPEL
Koppel Industrial Car & Equipment Co.
KOPPEL, PENNA.
Sales Offices
New York Pittsburgh
Chicago San Francisco

Neglect and Carelessness are the Biggest Evils of Hand Oiling

Consider what a burned-out bearing, a worn rack, gear or pinion means in replacement cost and time lost. Hills-McCanna Lubricators mechanicalize the operation and force a continuous film of oil to the parts that need it.

Sizes and types are available for all requirements.

HILLS-McCANNA CO.
2349-53 NELSON ST.~ Chicago
THE MOST COMPLETE SERIES OF ALLOYS FOR INDUSTRIAL USE
FORCE-FEED LUBRICATORS • PROPORTIONING PUMPS • TANK CAR VALVES



Exclusive

HAISS Reissue Patent Number 15,515 has been declared valid and infringed. It covers broadly the use of inclined feeding propellers or paddles on a loading machine.

Haiss is the originator of this simplest and most efficient device for making a loader self feeding, and which combines positive feeding with digging ability.

The U. S. Circuit Court of Appeals for the 3rd Circuit has sustained this Haiss patent, and that decision has become final.

GEO. HAISS MFG. CO., Inc.

144th Street and Park Avenue New York, N. Y.

HAISS

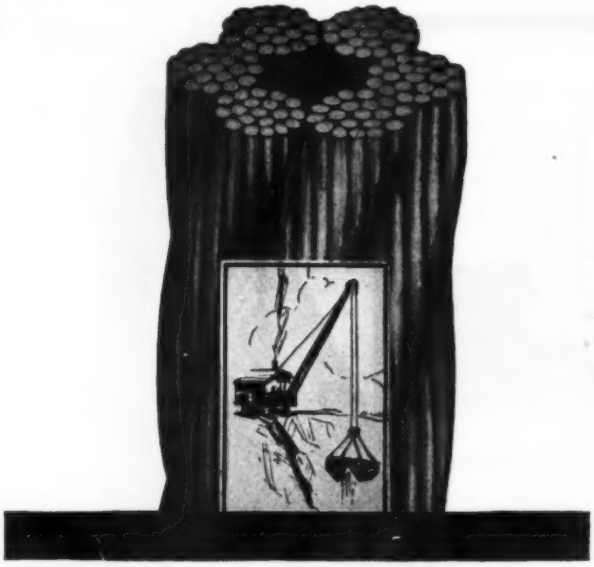
Notice
To The Trade

For the protection of our Customers and Distributors we shall vigorously continue to protect our rights.

Manufacturers, Sellers and Users of Infringing Machines are alike liable to suit and injunction.

For your Loader requirements purchase a machine you can use without interruption and royalties.

In writing to Geo. Haiss Mfg. Co., Inc., please use post card bound in the center of this number.



There Are Many Grades *of* Wire Rope

but it's the Right Grade for the Job that Counts!

Solve your Wire Rope problems by using—

AMERICAN

STEEL & WIRE COMPANY

WIRE ROPE

American Steel & Wire Company

Subsidiary of United States Steel Corporation

Sales Offices: Chicago New York Boston Cleveland Worcester Philadelphia Pittsburgh Buffalo Detroit Cincinnati Baltimore Wilkes-Barre St. Louis Kansas City Minneapolis-St. Paul Oklahoma City Birmingham Atlanta Memphis Dallas Denver Salt Lake City

U. S. STEEL PRODUCTS COMPANY
San Francisco, Los Angeles, Portland, Seattle
Export Representatives:
UNITED STATES STEEL PRODUCTS CO., 30 Church St., New York, N. Y.

SHOTS FROM THE FIRING LINE — Continued

Minnesota Notes

BY E. M. HEUSTON

F. H. COHOE

It is with deep regret that we learn that Frank Cohoe, Hibbing, Minnesota, General Superintendent of the Hanna Ore Mining Company, has passed away. We know that this will be a shock to his many friends all over the country—particularly upon the Iron Ranges—where he was known as a man who was always cheerful, a man who could always see the brighter side of things — even though they were troubles. He had a reputation for square dealing among all who knew him. His pleasant forceful personality will be greatly missed. His ability and training have been of great value in developing the large Hanna open-pit mines on the Missabe Range.

H. C. Bolthouse, superintendent for the Hill-Trumbull Mine at Marble, Minnesota, for the Messabi-Cliffs Iron Mining Co., will also be in local charge of mining operations at the Holman mine, at Taconite, Minnesota, which property is being put in shape for production.

Southern Notes

BY CHESTER COULTER

The Consolidated Quarries Corporation of Atlanta recently went into operation some few miles from Atlanta. This concern is using a Bucyrus-Erie 100-B electric shovel and a 30-B Diesel crane.

Rinehart & Dennis of Charlottesville, Virginia, under Stephens & Wood, Inc., of Nashville, Tennessee, and New York City, have again started construction work on a large dam for the Toccoa Electric Power Company, subsidiary of the Tennessee Electric Power Company at Blue Ridge, Ga.

E. J. Perkins is in charge of the work for Rinehart and Dennis, and now have on the job several shovels, among which are a Bucyrus-Erie 50-B steam machine and a Type "B". Something over a million and a half yards of earth will be used in the construction of this dam.

H. GLENN IRELAND.

H. Glenn Ireland, president of the Birmingham Slag Company, Birmingham, Alabama, died May 19th at the Harbor Infirmary in New York City, following an operation performed a few days previously.

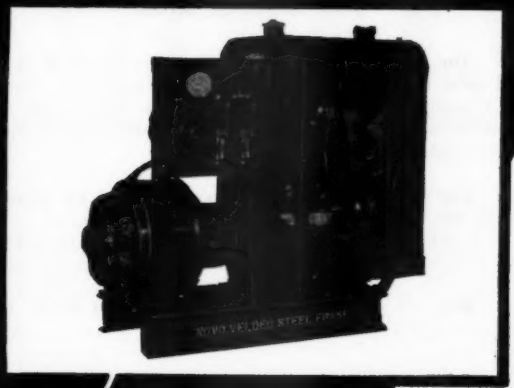
In ill health for a number of years, Mr. Ireland turned his attention from the company which he founded in 1916, to become an ardent dog fancier and sports fan. "Greymist," winner of the national field trials at Grand Junction, Tennessee, two years ago, was one of Mr. Ireland's dogs.

He is survived by his widow, a daughter and a son; his father and two brothers.

Black Gum Rollers

Standard dragline sound heart black gum rollers recommended by all contractors as superior to maple, at one-third the cost. Send us a trial order for a set, and be convinced. Used exclusively in all southern levee building on soft soil, which is a hard test on rollers. They have proven superior to all other materials.

Doherty-Walsh Roller Co.
Baton Rouge, Louisiana



Light—

"Flud-Lite"—Light All You Want

When—Where You Want It

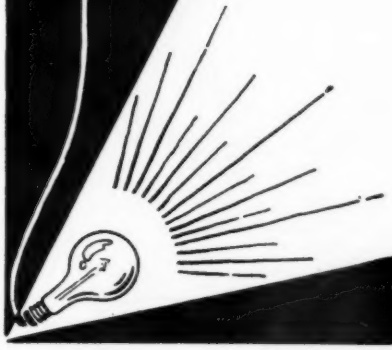
Shovels — dredges — draglines — cranes—construction jobs of all kinds can be flooded with light—cheaply and dependably—with the new Novo Flud-Lite Generator built specially for contractors.

A one, two or four cylinder Novo Rollr Engine supplies the power. Virtually every trace of vibration is eliminated in these new engines. A right-hand quarter turn cranks them. The engine is equipped with a lock-up steel house. And the engine and generator are securely mounted on an electric welded base.

Voltage can be controlled to within a maximum of three volts. Engine speed can be held within 5 per cent limits. As a result flickering and burned out bulb dangers are virtually eliminated.

It will pay you to investigate this simple, sturdy, dependable lighting outfit, that virtually assures unfailing light at a lower cost than you ever thought possible. The coupon will bring you complete information. Send it now.

Size range from 1 1-4 to 25 K. W.



Novo Engine Company
222 Porter St.
Lansing, Michigan
Please send me the special folder and prices on the new Novo Flud-Lite Generator.

Name _____

Company _____

Address _____

City _____

State _____

NOVO ENGINE COMPANY, 222 Porter St., Lansing, Mich.

Clarence E. Bement, Vice-Pres. and Gen. Mgr.

NOVO

PUMPS — ENGINES — HOISTS

Service, parts and sales in over 70 cities

In writing to Novo Engine Company please use post card bound in the center of this number.

Builders of Clam Shell, Orange Peel, Drag Line and Electric Motor Buckets; Dredging, Excavating and Coal Handling Machinery; Automatic Take-Up Reels; Counterweight Drums.

From gravel piles to trenches

WHETHER the service be fast handling of materials or difficult excavating work, a Hayward Class K Bucket meets the contractor's need for a rope reeved bucket which combines speed of operation with digging power.

Ask us for further information regarding this bucket.

THE HAYWARD CO.
52-54 Church St. New York, N. Y.

Hayward Buckets

SHOTS FROM THE FIRING LINE — Continued

St. Louis Notes

BY A. J. KOENIG

The Oklahoma Contracting Co. have an outfit at work at Poplar Bluff, Missouri, ditching and laying pipe line for the Mississippi River Fuel Co. This line will extend from the fields in Louisiana to St. Louis, Missouri. The project is to be finished in six months.

The Missouri, Kansas & Texas Railroad Co. plan increasing the yard facilities at Kansas City, Missouri. The yard capacities will be increased 40 per cent. $1,000,000 is the estimated cost. F. Ringer, Chief Engineer, St. Louis.

Wm. F. Plummer Co., Union National Bank Building, Springfield, Illinois, have contract for a dam at Wellsville, Missouri. They have about 11,000 yards of shovel work on this job to sublet.

The United States Engineer at New Orleans, Louisiana, will ask for bids in the near future on 17,500,000 cubic yards Mississippi River levee construction on continuing contract. On 3,500,000 cubic yards of Mississippi levee on straight contract; on 9,000,000 yards of side protection levees, Atchafala floodway under straight contract and 2,000,000 yards of tributary levee construction under straight contract.

The United States Engineers office at Memphis, Tennessee, received bids on May 22nd for approximately 8,368,000 yards of earth-work. This is the Bird's Point-New Madrid Floodway levee extending from opposite Cairo, Illinois, in a southwesterly direction for 28½ miles.

The Walsh Construction Co. have a steam shovel outfit at work for the Wabash Railroad Co. in their Decatur Yards.

Ask Your Operator

HAVE you ever watched a bucket go crashing back into the pit searching for unwary pit man? And a broken chain go lashing back over the circle reaching out for craner and operator? If you have you'll know why shovel crews recommend Taylor Mesaba Chain. *It's best by test.*

TAYLOR MESABA
"Quality at Low Cost"

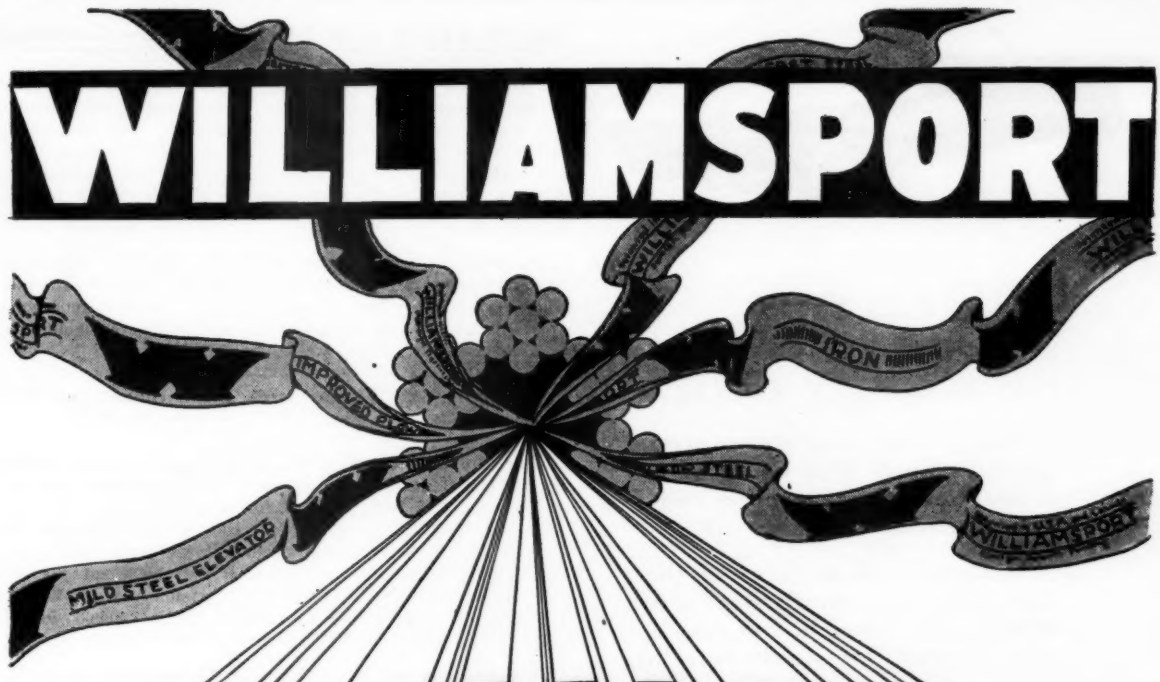
Above is an illustration of a 1¼-inch bar etched, showing the special piling of the iron used in Taylor-Mesaba Chain.

KEEP EXTRA CHAIN ON HAND FOR EMERGENCIES

S. G. TAYLOR CHAIN CO.

Established 1873 P. O. Box 117-B, HAMMOND, INDIANA

TAYLOR MADE Chain and Fittings can be obtained from your local mill supply house or mill supply jobber.



TELFAX TAPE

An Exclusive Factory Certification in

WIRE ROPE

Here's a protection of priceless value that careful engineers and superintendents everywhere have demanded for years.

Williamsport is interested not only in building utmost quality in their wire ropes, but in protecting the user against mistakes in their use, through substitution and other ways.

Williamsport alone gives the user this valuable service. It costs you nothing to get, but its value may prove greater than many times the cost of the rope.

Most important manufacturers of machinery on which wire rope is used equip with Williamsport Wire Rope because:

(1) They want to KNOW the grade of ropes they use.
(2) They want *you* to KNOW the grade you're getting.

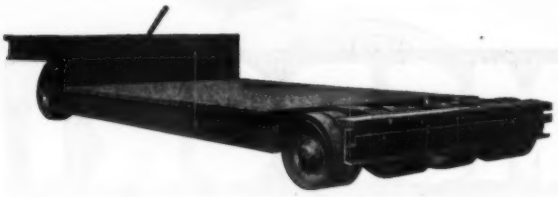
Write us for literature and let us quote you prices.

WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works:
Williamsport, Pa.

General Sales Offices:
Peoples Gas Bldg., Chicago

In writing to Williamsport Wire Rope Co. please use post card bound in the center of this number.



"Thanks - - - *for the Buggy Ride!"*

That is what your shovel would say if it could, after being moved to your new job on one of our heavy-duty trailers.

Modern small shovels with their caterpillar-type mountings walk along easily enough, but they are not designed for steady traveling or fast traveling. Long moves under their own power are slow. They hold up the job and hold up "the pay roll". This also applies to other self-propelling equipment.

BUCYRUS-ERIE COMPANY can supply for immediate shipment packings of all kinds, brake lining of all types, wire rope, electric light plants, dipper trips and electric power cables.

We can supply you with trailers of from 20 tons to 75 tons capacity, equipped with six or more rubber-tired wheels, which will carry your equipment quickly and safely from job to job, saving you valuable time and saving your equipment from expensive and unnecessary wear. These extremely sturdy and well-built units have cast steel wheels, Timken roller bearings and internal expanding brakes.

May we furnish you complete information?

BUCYRUS-ERIE COMPANY

BUCYRUS ERIE

Specialty Department
South Milwaukee, Wisconsin

Move your heavy equipment quickly and safely with your own trucks

SHOTS FROM THE FIRING LINE — Continued

The Wabash Railroad and the City of St. Louis have come to an agreement in the matter of depressing the railroad tracks in Forest Park, St. Louis, Missouri. The project involves the construction of two bridges. Preliminary plans are being made. M. F. Longwell is chief engineer of the Wabash Railroad. L. R. Bowen is bridge engineer for the City of St. Louis, Missouri.

F. M. Lang, 3253 Lexington Road, Louisville, Kentucky, has eight or ten 2½-ton dual pneumatic tire dump trucks idle. These trucks also have batch partitions for concrete work and will hold three batches. Anyone interested should get in touch with Mr. Lang.

L. Werler, 721 Walnut Street, Elgin, Illinois, has three 2½-ton trucks idle. Would like some work for them.

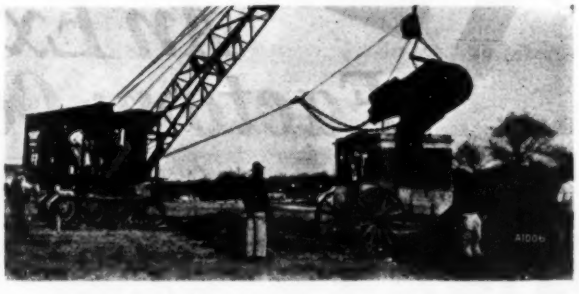
The Missouri, Kansas & Texas Railroad Company's budget for 1929 provides for the expenditure of $2,076,900 for rail laying and ballasting, $251,245 for flood protection and bank widening, $502,290 for grade and line revision, $644,440 for bridges and trestles and $1,000,000 for signals, shops and machinery. Approximately $400,000 will be spent for line and grade revision on the Herrietta Division between Whitesboro and Wichita Falls, Texas, and about $90,000 will be spent for the reduction of curvature on the St. Louis Division.

Construction of a second dam on the Ouachita River near Hot Springs, Arkansas, was authorized by the Board of Directors of the Arkansas Light and Power Co.

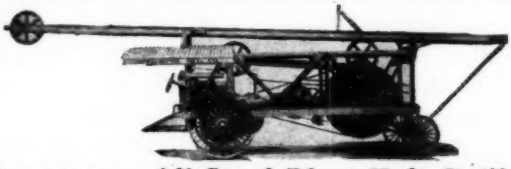
Oklahoma Notes

BY C. F. BARTON

The Standard Paving Company have begun work on Tulsa's water filtration plant and expect to complete the job this



summer. For the excavation they are using a Bucyrus-Erie E-2 Diesel dragline. Dirt from the filter excavation is to be used in construction of an 80-foot drive, a part of the proposed Mohawk boulevard.



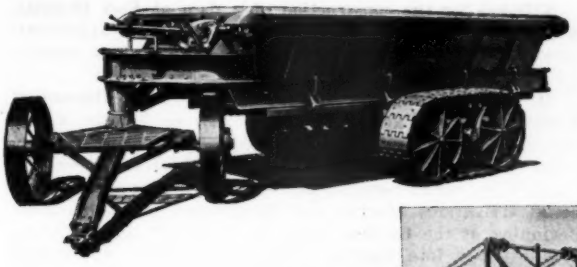
Armstrong All Steel Blast Hole Drills

Are the choice of the country's largest producers of Limestone, Cement Rock, Trap Rock, Granite, Iron Ore, Lead and Copper.

Ten Outstanding Features — found only in Armstrong Blast Hole Drilling Equipment — insure more holes at a lower cost per foot. Write for "The Story of the Quarry".

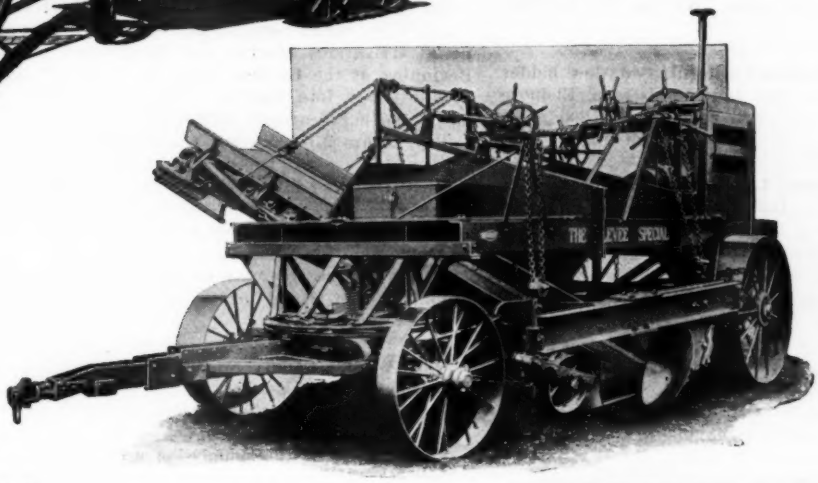
See P. & Q. Handbook, page 71; 1928 Keystone Metal Quarry Catalog, page 160.

ARMSTRONG MFG. CO., 919 Chestnut Street Waterloo, Iowa, U. S. A.



Western 7-yard Crawler Dump Wagon.

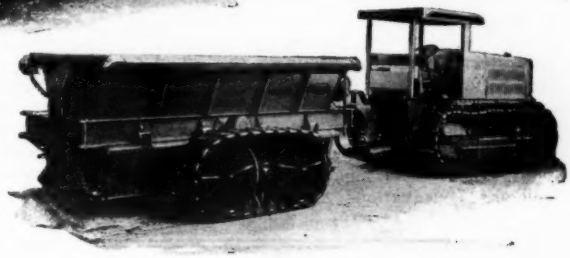
Made also with direct tractor hitch.



Western Levee Special Elevating Grader with motor-driven belt.

It is as great a step forward as was the Crawler Dump Wagon.

An . . . Unbeatable Combination *for* Moving Dirt



Western 5-yard Crawler Dump Wagon pulled singly or in trains.

This dirt moving combination is unbeatable:

For loading—A Western Levee Special Elevating Grader, which can load mud and sand.

For hauling—Western Crawler Dump Wagons, which can travel in mud and sand.

The Levee Special with its motor driven belt has demonstrated a capacity from 40 per cent to 75 per cent greater than the same size machine on which the belt is driven from the rear axle.

The ability of the Western Crawler Dump Wagons to carry capacity loads under the most adverse haulage conditions is common knowledge. They are furnished in six sizes and combinations to meet all requirements.

Where shall we mail your copies of Bulletins 29-AK and 29-BK which give detailed descriptions of this money-making combination?

Western Wheeled Scraper Co.
AURORA, ILLINOIS

WESTERN

DUMP CARS AND GRADING EQUIPMENT

In writing to Western Wheeled Scraper Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

Los Angeles and Vicinity

BY FORREST L. BEST

Proctor G. Duell, Phoenix, Arizona, was awarded contract by City of Phoenix Water Department for excavating river channel and driving 200 30-foot piles. Will use his Bucyrus-Erie Gas + Air machine.

J. W. Breedlove, Los Angeles, California, was low bidder for highway improvement on San Juan Capistrano, Elsinore Highway. The proposed work will consist of 66,200 cubic yards of excavating.

Southwest Paving Company, Los Angeles, California, submitted low bid to California Highway Engineer for highway construction in Kern County, involving grading and oil surfacing for 7.3 miles near Cinco, California.

Mittry Bros. Construction Company, Los Angeles, California, submitted low bid to Constructing Quartermaster, C. Gardenhire, at March Field, California, for grading roads and walks involving 75,000 cubic yards of excavation.

Martter & Bock, Los Angeles, California, were low bidders for improving Lookout Mountain Road and Wonderland Avenue at $288,600.25.

California Highway Engineer has asked for bids at Sacramento for Highway Construction in San Bernardino County between Alray and Summit, about 3.8 miles in length, to be graded, involving 401,500 cubic yards of excavation, and in San Diego County between La Posta Creek and Miller Creek, about 4.5 miles in length, to be graded, involving 205,000 cubic yards excavation.

$370,000 for the construction of a dam at Fort Douglas, Arizona, is included in the War Department's $12,000,000 construction program which will cover the next few months.

H. J. Gault, engineer for the United States Bureau of Reclamation, will arrive in Yuma, Arizona, within a few days and will make Yuma his headquarters during the proposed survey of the **"All American" Canal,** arrangements for which were made recently at conferences between the Imperial Irrigations District and the Bureau of Reclamation. Beginning at the Laguna Dam, the canal will extend about 40 miles west into Imperial Valley. Thence, it will branch north and curve around Salton Sea to supply the Coachrila Valley, where 270,000 acres are not watered by the present inadequate system. The course of the canal lies for 10 miles through the sand hills district which separates the Colorado River from the Imperial Valley. Through this 10 miles it will flow through a cut with a maximum depth of 150 feet, and the canal will have a width at the bottom of 140 feet. An alternative route would carry the canal around the sand hills, but would necessitate swinging into Mexico for two or three miles.

Los Angeles County Supervisors are asking for bids for road work in the east fork of the San Gabriel Canyon, 5.17 miles in length, involving 600,000 cubic yards of excavation.

Arizona Highway Commission are asking for bids on 16 miles of graded road on the Ashfork and Kingman Highway, involving 82,600 cubic yards of excavation. The project begins at the east boundary of the Indian Reservation and extends to the western boundary of the reservation.

Sue: "So Mabel was married last night. Who was the lucky man?"

Mary: "Her father."

THE SANDERSON CYCLONE DRILL CO., ORRVILLE, OHIO

DRILLS

and drill tools for every kind of Big Blast Hole Drilling

Catalog Mailed on Request

Meeting Place of Capital and Labor

The KOENIG LABOR AGENCIES

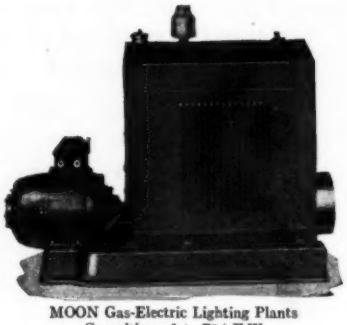
Established 1875

ST. LOUIS
612 Walnut Street
Main 2766 and 2767

KANSAS CITY
501 Delaware Street
Main 0796

Help of All Kinds Furnished Free

Your Lighting Plant



MOON Gas-Electric Lighting Plants
Capacities—1 to 7½ K W

How about your lighting plant?
Is it simple to operate?
Is it rugged enough to stand hard service?
Is it on the job, night after night?
It is—if it's a MOON.
MOON Lighting Plants have proven themselves to the contractor through their fifteen years of faithful, reliable service.

Write for descriptive Bulletin No. 15.

THE MOON MFG. CO.
108 NO. JEFFERSON STREET
CHICAGO

No Jacks Used on this Raising Job

The material used on this yard raising job consisted of a mixture of chunky and granulated slag. The machine was equipped with the extra spuds to permit raising the track vertically as the inset shows.

About six miles of track were involved in this yard raising job. The maximum lift was about 16 feet. By using a Nordberg Track Machine for raising, it dispensed with the jack gang. With the high lifts made and the soft footing afforded by the filling material this meant a saving of labor expense of 12 men. The machine also eliminated the time and expense of men digging jack holes and setting jack blocks. On a job of this kind the Track Machine soon pays for itself out of labor savings.

Since the development of the Nordberg Track Machine, railroads, contractors, open pit mines and quarries where track raising and shifting operations are carried on, no longer can afford to continue with old-time hand methods. Let us give you data showing the savings on other jobs and also send you Bulletin GR-8.

Nordberg Mfg. Co., Milwaukee, Wis., U. S. A.

THE NORDBERG PATENTED TRACK MACHINE

In writing to Nordberg Mfg. Co. please use post card bound in the center of this number.

The New WILLIAMS "Champion" Series

The fastest and most powerful buckets ever built—

A new line of Clamshell "Super-buckets," that will outdig any others you have ever used. *Guaranteed to show you Greater Digging Power and More Speed.*

The WILLIAMS "Champions" welcome competition, and invite comparative tests!

When you inspect these new "Champions" you'll see at once how the many improvements—combined with exclusive features used successfully on past WILLIAMS buckets—have made these the *biggest bucket values ever offered.*

21 points of Superiority. Write for Bulletin "E," giving full description of the WILLIAMS "Champions" — and we'll make arrangements to have you test one of these super-buckets on your work.

G. H. WILLIAMS COMPANY

603 Haybarger Lane, Erie, Pa.

Branch Offices: New York, Pittsburgh, Chicago

WILLIAMS
FAST-DIGGING BUCKETS

SHOTS FROM THE FIRING LINE — Continued

Pacific Coast Notes

BY J. H. SACKETT

Alan MacDonald of MacDonald & Kahn, contractors of San Francisco and Los Angeles, and a graduate of Cornell University, on April 10th was appointed general manager of the Golden Gate Bridge and Highway District. On this same day Hon. C. C. Young, Governor of California, signed the bill validating the project, which is to advance State funds for preliminary surveys. William P. Filmer, president of the district, will soon appoint a board of three consulting engineers.

Contract was awarded by the Western Pacific Company **to W. A. Bechtel Company,** 206 Sansome Street, San Francisco, for the construction of a passing track at Pulga, and a passing track at Belden, Plumas County. The work involves 100,000 cubic yards of excavation.

Ted Thoronson is very well pleased with the operation of the Bucyrus-Erie GA-2 which he is operating for Granfield, Farrar & Carlin on their Marin County job. This job is progressing very nicely and Thoronson is getting out a lot of dirt with the usual ease of a Gas + Air shovel.

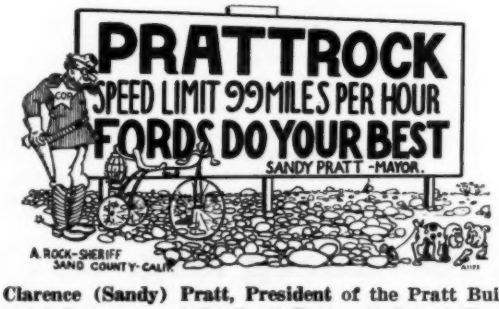
Plans are being made and will be completed in about two months by City Engineer E. A. Hoffman, City Hall, Richmond, Contra Costa County, for constructing vitrified and concrete and monolithic storm and sanitary sewer system for the City. The estimated cost is from $750,000 to $1,000,000.

Plans are being prepared by E. C. Eaton, Chief Engineer, Los Angeles County Flood Control District, 202 North Broadway, Los Angeles, for constructing concrete arch type Eaton Canyon Dam 13 miles northeast of Pasadena, California. Call for bids will be issued in a month or so. Height above stream bed 188 feet; thickness at crest 7 feet; thickness at base 26.8 feet; crest length 396 feet; and storage capacity 800 acre feet. Spillway at crest of dam will be notched with shaft on downstream face. There will be gravity abutments at both ends of the arch. The work involves in main: 75,000 cubic yards of excavation all classes; 45,000 cubic yards concrete all classes. Estimated cost $600,000.

Contracts awarded by California Division of Highways, Highway Building, Sacramento, California, as follows:

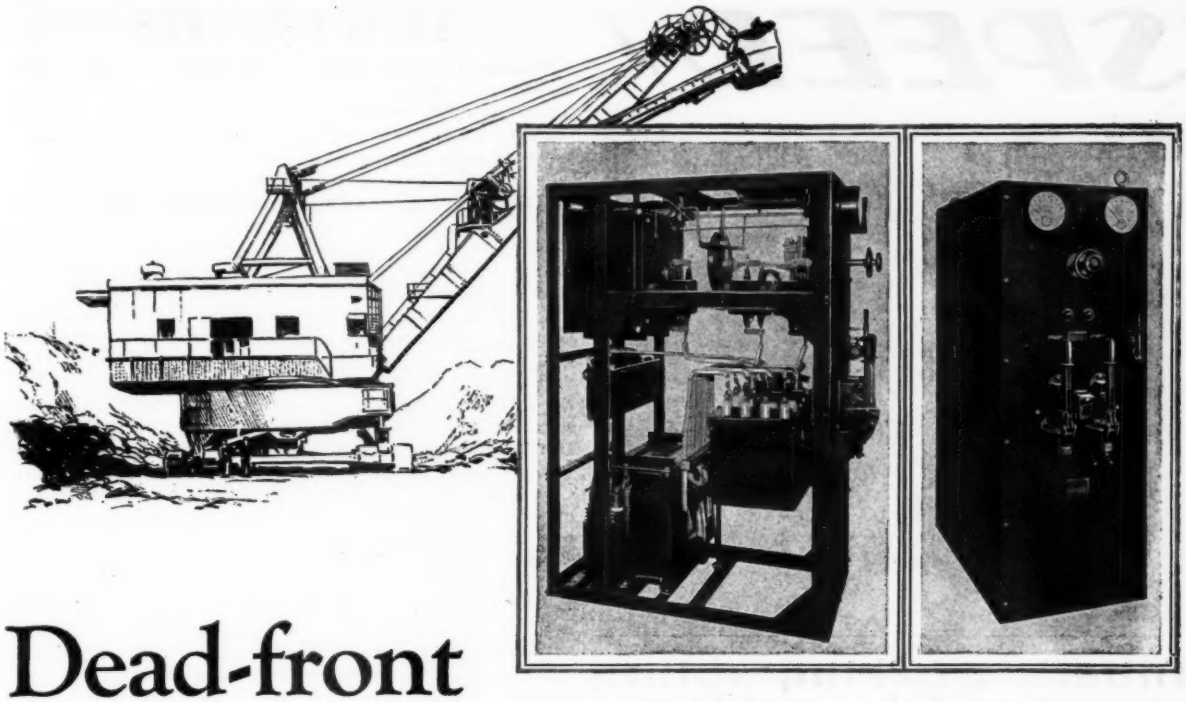
(1) **To C. R. Adams,** Hotel Colt, Oakland, who bid $263,482 for 11.7 miles of grading from Nevada City to 1 mile west of Washington Road, Nevada County.

(2) **To Young Brothers,** 2544 McGee Street, Berkeley, who bid $28,771 for 0.7 miles of grading at String Hill near Mount Shasta City, Siskiyou County.



Clarence (Sandy) Pratt, President of the Pratt Building Material Company and the Pratt Rock and Gravel Company of San Francisco, advertises his sand, rock and gravel plants at Sacramento, Prattock (near Folsom), Marysville and Pratco (Monterey County), by erecting signs, similar to the above illustration, which greet the motorist who tours California. Mr. Pratt says that these signs seem to be the best advertisement that he has been able to discover. Lighted up at night and located on the main highways, they have made most Californians familiar with the name of Pratt Rock.

In writing to G. H. Williams Company please use post card bound in the center of this number.



Dead-front cubicles for electric shovels

TO guard and control the motor-generators which drive electric shovels, as well as to provide safety for the operators, General Electric now offers the dead-front cubicle—an enclosed panel which is available in capacities up to 800 kv-a. The largest cubicle can be used with a shovel which excavates 12 cubic yards of material with every lift.

These cubicles protect the operators who work on the moving, and often vibrating, deck of the electric shovel, and their very construction withstands that vibration. The units are readily accessible for inspection and cleaning by means of removable side, back, and top plates. The enclosed construction prevents the constant accumulation of dust on the operating parts.

Lifting lugs facilitate an installation already simple, because factory-tested factory-assembled units need only to be anchored and connected to be ready for a life of hard active service. The nearest G-E office will be pleased to furnish promptly complete information on the dead-front cubicle.

JOIN US IN THE GENERAL ELECTRIC HOUR, BROADCAST EVERY SATURDAY AT 8 P.M., E.S.T. ON A NATION-WIDE N.B.C. CHAIN

460-36

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

In writing to General Electric Co. please use post card bound in the center of this number.

SPEED

Inbuilt working ability saves Time, Labor and Money

When time means money and every delay cuts into your profits, then it's a case of need for dependable ACTION. That's just when a reliable Buckeye Utility Crane helps most. It may be in crane, clamshell, dragline, or backfiller service—there's no difference, all are in a day's work for this Buckeye. A job is always ready and another waiting for it in well-planned operation. *"Every Day It Pays Its Way."*

Here are some of the reasons—check these construction features: Timkin roller bearings; slow speed, heavy-duty type motor; two speeds for all operations, giving unusually flexible working ability; one-man control; full-circle scope of operation; adjustable length boom; and Alligator (crawler) traction. Let us tell you more about this fast, time-saving Buckeye Utility Crane. Interesting literature sent on request—write today.

The Buckeye Traction Ditcher Co.
FINDLAY, OHIO

There's a Buckeye Sales and Service Office Near You

for over thirty years **Buckeye**

TRADE NOTES

Thomas L. Gatke announces the removal of the general offices of Thomas L. Gatke from the Railway Exchange Building to 228 North La Salle Street, Builders Building, Chicago, Illinois. Thomas L. Gatke manufactures friction products under the trade name of "ASBESGRAPHITE."

The Novo Engine Company of Lansing, Michigan, have recently appointed the following distributors to handle the Novo hoists, draglines, engines, pumps, lighting units and similar equipment: Jersey Contractors Equipment Co., 1020 West 8th Street, Plainfield, New Jersey; Fitsgerald & Hudson, 150 Nassau Street, New York City, New York; Fred Lemcke, Park and Liberty Avenues, Jackson, Michigan; Wylie Bros., Inc., Tulsa, Oklahoma; R. L. McDonald, Inc., Springfield, Missouri; Anderson Tractor & Equipment Co., No. 1 West Chapel Road, Biltmore, North Carolina; Tennessee Tractor Co., 208 Fourth Avenue S., Nashville, Tennessee; Mine & Smelter Equipment Co., 306-12 South Seventh Avenue, Phoenix, Arizona; Lund & Co., 425-8 Dooley Block, Salt Lake City, Utah. R. T. McClelland, Inc., Oakland, California, who have been Novo distributors for several years, are now located in San Francisco, and are known as Krantz-McClelland, Inc., 522 Bryant Street, San Francisco, California.

The Victor L. Phillips Company have recently opened a new office at 1402 E. 6th Street, Tulsa, Oklahoma, where they will handle Bucyrus-Erie excavating equipment together with other contracting machinery and supplies. This company formerly maintained a Tulsa office at 541 Troost Street.

Incredible

A New Yorker, visiting some friends in London, was lamenting having left at home two beautiful daughters who were just budding into womanhood.

Turning to a man to whom he had just been introduced, he asked if he had any family.

"Yes, I have a wife and six children in Australia. And I never saw one of them," he added quietly.

The two sat in silence. Then the interrogation began.

"Were you ever blind, may I ask?" said the American.

"No," was the reply.

"Did you marry a widow?"

"No," he answered.

Another silence.

"Did I understand you to say you had a wife and six children living in Australia and had never seen one of them?"

"Yes, that is how I stated it."

Then the American inquired, "How can that be? You say you never saw one of them. I do not understand it at all."

"Because," was the reply, "one of them was born after I left." — *Exchange.*

Page Buckets
DISTINCTIVE AND EXCLUSIVE
Standard of the World
PAGE ENGINEERING CO.
844 RUSH ST. CHICAGO – ILL.
DRAG SHOVELS – DRAG LINES – BUCKETS – SLACK LINES

Roebling

A Name Renowned in Wire Rope Manufacture

John A. Roebling's Sons Company
Trenton, New Jersey

In writing to John A. Roebling's Sons Co. please use post card bound in the center of this number.

BOOK REVIEWS

E. I. du Pont De Nemours & Company of Wilmington, Delaware, recently issued through their Publicity Bureau, in the March number of the Explosives Service Bulletin, a complete index of the valuable material concerning the best methods of handling and using explosives which have been published in the Explosives Service Bulletin during the past six years. These papers, prepared by the Technical Section of the Explosives Department of the du Pont Company, are unique in a number of ways. None of them contains advertising, but they faithfully set down the new things and the best methods developed by the du Pont technical men in their everyday work. They constitute an unusual record of a frank presentation of valuable data.

Parties to whom these bulletins would be of value can obtain them by sending a request to any of the Branch offices of the Du Pont Company or by writing direct to the Advertising Department of that company at Wilmington, Delaware.

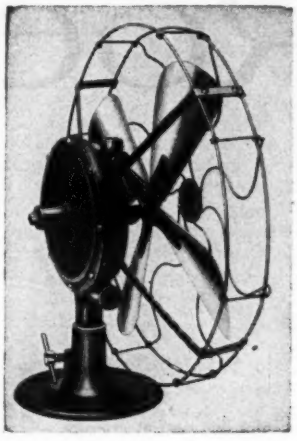
Timken Roller Bearing Company of Canton, Ohio, have recently issued a very attractive book beautifully bound and illustrated, and entitled "Wherever Wheels and Shafts Turn." The subject matter deals, of course, with Timken Tapered Roller Bearings, describing their use and the advantages they give in all types of equipment. Rarely indeed do we have the opportunity to look over so attractive a catalog.

The Judge: "This lady says you tried to speak to her at the station."

Salesman: "It was a mistake. I was looking for my friend's sister, whom I had never seen before, but who's been described to me as a handsome blonde with classic features, fine complexion, perfect figure, beautifully dressed and ——"

The Witness: "I don't care to prosecute the gentleman. Any one might have made the same mistake."

Increase Your Output

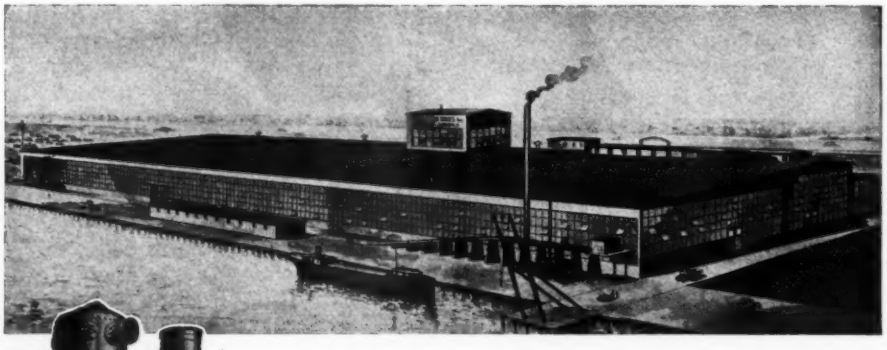


In hot sultry weather, when mosquitoes and flies sing lustily and bite viciously, it's hard for an operator to keep the output where it belongs. Heat of boiler and heat of sun sap his energy, and not being equipped with a tail he must use hands he needs at the levers to slap at insect pests and keep the sweat out of his eyes.

Now-a-days these handicaps are unnecessary. Put your output back on a comfortable weather schedule by using this little steam fan. An eighteen-inch self-oiling fan—it gives a good healthy current of air—requires very little steam and needs practically no attention.

BUCYRUS ERIE

BUCYRUS-ERIE CO.
Specialty Department
South Milwaukee, Wisconsin



65 Years Building Boilers for the World!

For sixty-five years Johnston Brothers, Incorporated, have been building boilers for the outstanding engineering projects of the world. Engineers have come to know that if they demand a Johnston Boiler they can be sure of absolute satisfaction.

If you have a boiler problem it will pay you to secure the Johnston proposition.

JOHNSTON BROS., Inc., Ferrysburg, Mich.